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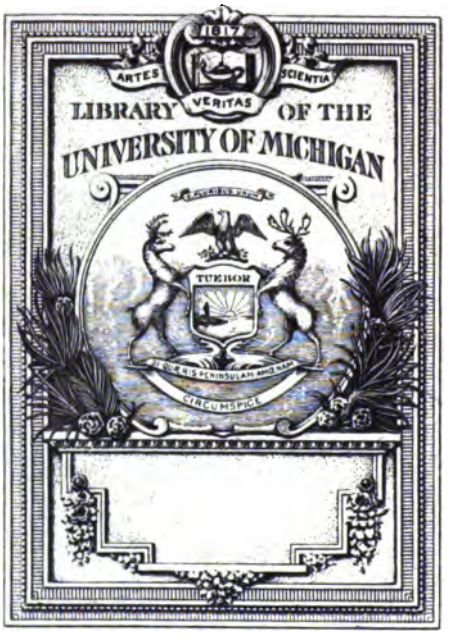
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CLIMATOLOGY OF FLORIDA

F 2435

BY

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PREFACE.

At a recent meeting of the Florida Medical Association, a paper was read on the Climatology of Florida, by Dr. C. J. Kenworthy, the President, which attracted very general attention. The information which it contains is not only valuable, but it is presented in so forcible a style that we were anxious to have it disseminated through a wider sphere than could be reached by its publication in the proceedings of a medical society. We therefore applied to Dr. Kenworthy for permission to republish it and distribute it among the thousands throughout the Northern and Western States who seek a warmer winter climate. This permission was kindly granted, and the author has also taken the opportunity to introduce some statistics that were not available at the time the paper was originally published.

To the annual visitor to Jacksonville, the name of Dr. Kenworthy will be sufficient to attract attention to anything from his pen. To those who do not know him, we will say that he adds to his high standing and long experience as a physician in New York city, in Australia and in Jacksonville, that thorough acquaintance with the forests and streams of Florida, which can only be acquired as an ardent votary of the rod and gun.

CLIMATOLOGY OF FLORIDA.

BY CHARLES J. KENWORTHY, M. D., JACKSONVILLE, FLORIDA.

Mr. President and Gentlemen:

The President, Dr. Daniel, appointed me one of the essayists on this occasion, and I have selected as a subject for a few remarks, the Climatology of Florida, with United States and Continental comparisons. In treating this subject, I shall not aim at originality. In the language of Dr. Lente, of New York, "I make the attempt to enlighten the public, more especially the medical public, on the subject of the Climate of Florida, its adaptability as a health resort, and especially to remove certain unfounded ideas and prejudices which have been wide spread and deeply rooted in Northern communities. It is somewhat surprising that this should be the case with medical men, since positive information on the subject has always been accessible to them in the volumes of the Medical Statistics of the United States Army, the Army Medical Reports, and the Reports of the Adjutant General's Office."*

As evidence that such ignorance does prevail among educated medical men regarding climate, I quote from recent writers.

Dr. Denison remarks: "Of American climates of low elevation, we have the resorts of moist and sedative Florida."† If this gentleman had familiarized himself with the meteorology of Florida, he would have written: "Portions of Florida possess a dry and bracing climate, while some localities are more moist and sedative."

Dr. Napheys uses the following language: "Lower dry climates: Cannes, Mentone, Minnesota, Northern Georgia." "Lower damp climates—Florida: moist, changeable."‡

But the facts in the case, if reliable observations are to be accepted, are the opposite of what Dr. Napheys has asserted. The mean relative humidity of the localities referred to, for the cold months, is as follows:

---

*Constituents of Climate, Louisville Medical Journal, Aug., 1878.

†Rocky Mountain Health Resorts, by Charles Denison, A. M., M. D., Boston, 1880, p. 13.

‡Modern Medical Therapeutics, by G. A. Napheys, M. D., Philadelphia, 1880, p. 193.

	November.	December.	January.	February.	March.	Mean for 5 months.	Mean for 5 Months.
	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.
Cannes and Mentone*....	71.8	74.2	72.0	70.7	78.3	72.4	
Augusta, Ga.†.....	71.8	72.6	73.0	64.7	62.8	68.9	
Breckenridge, Minn.†....	76.9	83.2	76 8	81 8	79.5	79.6	)
Duluth, Minn.†.....	74.0	72.1	72.7	73.3	71.0	72.6	> 74.4
St. Paul, Minn.†.....	70.3	73.5	75.2	70.7	67.1	71 4	)
Jacksonville, Fla.†.....	71.9	69 3	70.2	68.5	63.9	68.8	)
Key West Fla †.....	77.1	78.7	78.9	77.2	72.2	76.8	> 72.7
Punta Rassa, Fla †.....	72.7	73.2	74.2	73.7	69.9	72.7	)

From the above data, it appears that the mean relative humidity of Cannes and Mentone, during the cold months, exceeds that of Jacksonville by nearly four per cent. Three stations in Minnesota have a mean of 74.4, and three in Florida a mean of 72.7, showing a per cent. of 1.6 in favor of Florida, and 5.6 per cent. in favor of Jacksonville over Minnesota.

Dr. Talbot Jones, of St. Paul, Minnesota, in an essay published in the New York Medical Journal, September, 1879, says: "The injurious effects of a moist atmosphere have been alluded to. By referring to the foregoing meteorological tables, it will be observed that the atmosphere of this State (Minnesota) is remarkably free from moisture. Hygrometric measurements show that the atmosphere of that State (Florida) is loaded with moisture."

Dr. Jones learnedly discusses "Hygrometric measurements" and "that State loaded with moisture," neglects to favor his readers with a *reliable* "*table*" referring to the humidity of Florida. Simple assertions, "as that State loaded with moisture," are unprofessional and unreliable.

If we take the entire year, for a period of five years, we will find but little difference in the mean relative humidity of Minnesota and Florida, as the following data, kindly furnished us by the Chief Signal Officer of the United States Army, will demonstrate:

*The Riveira, E. J. Sparks, M. D., London, 1879, p. 9.
†Signal Office Reports.

Years.	Minnesota.			Florida.		
	Brecken-ridge.	Duluth.	St. Paul.	Jacksonville.	Punta Rassa.	Key West.
	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.
1875	75.7	67.2	69.0	70.3	76.0	71.5
1876	67.7	68.2	69.1	67.2	73.9	76.1
1877	72.2	71.9	67.6	69.3	70.5	74.1
1878	76.2	71.5	67.7	68.7	72.4	74.5
1879	74.1	72.8	65.3	69.7	72.3	74.2
Mean for 5 years	73.2	70.3	67.7	69.0	73.0	74.1
Mean for five years for States		70.4			72.0	

From the above reliable "data," it will be found that the "atmosphere of Florida," although "loaded with moisture," contains, for the year, but 1 6-10 per cent. of moisture in excess of the "dry and desiccating" climate of Minnesota. During the five cold months, the mean relative humidity of Florida is less than that of Minnesota, and if we accept as conclusive, the "hygrometric measurements" and statements of Dr. Jones, Minnesota is not a suitable climatic resort for invalids during the winter months, for its relative mean humidity is greater than that of Florida, and more especially that of Jacksonville, which he specially condemns, on the ground that the atmosphere is "loaded with moisture." The mean relative humidity of St. Paul exceeds that of Jacksonville for the five cold months by 2.6 per cent.

Natural remedial agents, as climate and mineral waters, are attracting much attention, and reliable data regarding them should be placed before the profession and the public. In the language of Dr. Madden, Physician to St. Joseph's Hospital, Dublin, "Notwithstanding the number of recent works on the subject, there is a great deficiency of accurate information concerning even the most frequented health resorts. For the majority of such books, being written either by those residing in some sanitarium, the advantages of which are unconsciously exaggerated, or else being merely copied from their local advertisements, physicians at home are often misled, and the patients suffer the consequences. He who would attempt to supply the want of a comprehen-

sive and reliable guide to health resorts, should have personal experience in many climes and places, and himself be a physician."*

Difference of opinion exists in the profession regarding the effects of climate in the treatment of pulmonary and other diseases. Having been a member of the profession for over the third of a century, and having treated disease in private practice, as well as in several hospitals in the United States and in other lands, I have reason to believe that I am justified in expressing mine. My reason for settling in this State was my wife's health. She was a sufferer from phthisis, aggravated by a Northern climate. From my personal knowledge of the climatic advantages of this State, acquired by frequent visits, the first in 1844, I resolved upon settling in this city. As a result of change of climate, combined with rational medication, my wife was restored to health. In 1849, I was connected with Bellevue and Blackwell's Island Hospitals, New York, and contracted typhoid fever and cholera, followed by post mortem poisoning, and impaired health was the result. Tracing my family history, I found that my mother and fourteen of her brothers and sisters had died of phthisis. With impaired health, a laryngeal affection and a hereditary predisposition to tuberculosis, I had anything but a bright prospect before me. I looked to clima e as my sheet anchor, and sailed for Australia; and a dry and warm climate improved my health, and to-day, as you can all perceive, I am in the enjoyment of as good health as usually falls to the lot of men of my age. After a permanent residence in this State of nearly six years, I am convinced of its healthfulness and the superiority of its climate, and deem myself warranted in expressing an opinion.

When invalids visit a Southern clime, they expect to find perpetual spring, and a climate made to order, "a wonderful paradise, and cry out like naughty children when their delusion is exploded." But a model climate does not exist, and no country is perfect in this respect. The physician's object should be to select for his patients the situation presenting the greatest advantages and the fewest objectionable features for the case under consideration. Annually, patients migrate to health resorts merely to find a grave, as a sequence of being sent from home when beyond the hope of cure, or because "a situation unfavorable to the particular malady has been selected, the laws of climate being ill un-

*Health Resorts—T. M. Madden, M. D., 1876, p. 7.

derstood, and in some measure, because it is difficult to persuade the sick that simple change from one climate to another country or section, is *only one of the means* by which they are to regain their health. For, although there can be no doubt that in change of air, physicians have an efficient remedial agent, yet it is certain that this remedy, like all others, is not of indiscriminate application, but must be prescribed with judgment."* "Of the large and annually increasing number of invalids, more especially consumptive patients, who are now sent abroad to winter in vapious health resorts, probably as many are injured by a wrong or by too tardy a change of climate, as are saved by the timely and judicious use of this most valuable remedy. Patients, as a rule, will not abandon the comforts of home, or the avocations of their life, so long as they can cling to them, nor do physicians generally prescribe this step until other treatment has failed, and then, when perhaps the disease is far advanced, the patient may be induced to try a change of climate as a last resource."†

What climate shall be chosen for the invalid, is a matter of vital importance, and an error in this direction may be fatal. In some instances, neither physicians nor patients fully appreciate the necessity of deciding correctly and abiding by the decision. Invalids are often imprisoned in some secluded spot, which happens to be brought prominently before them or their physicians by a well written pamphlet, when a frequent change of air would have been beneficial to them, and when the moral effect of change of scene would have been more useful. On the other hand, those who require rest and quiet are allowed to rush wildly along and pass the greater part of their time in traveling. Others are consigned to a cold, damp and changeable climate, when they require the opposite. Some are sent to a tropical and moist climate, when they would be benefited by a moderate, dry and bracing one. Dr. Brinton, of Philadelphia, has aptly, yet bluntly, presented this subject, and we shall quote his language: "And here I must say with all due deference to the faculty, that the ignorance and carelessness of physicians in reference to this matter are, at most, reprehensible. Few of them make any distinction in cases. They send all consumptives to Minnesota, or to Texas, or to Cuba, or Florida, as if in every instance what is sauce for the goose is sauce for the gander. Thus it hap-

*Tanner's Practice of Medicine, p. 782.
†Health Resorts—Madden, p. 1.

pens, that the most eligible climates gain a bad reputation. When a medical man recommends a climate and yet is unable to tell its temperature, its moisture, its prevailing winds, its seasons, its local diseases, its articles of food, its accommodations for travelers—beware of him—he is a dangerous counselor. These facts the physician *must know* to advise wisely. Constitutions are differently affected by climate, and so are cases of the same disease. Some climates are sedative and relaxing; others tonic and bracing; some are moist and soothing; others dry and steeling. Some constitutions are nervous and irritable; others torpid and sluggish; some have plenty of latent force, which needs use; in others, the vital powers are naturally weak and must be carefully husbanded. In some cases, the symptoms are of inflammatory; in others, of an atonic character. In some, the secretions are scanty; in others, profuse. In some, considerations of diet are of great importance; in others, they do not enter. In some, the cough is importunate; in others, scarcely annoying, and a hundred other differences might be added. The question is a complicated one. It asks, for its solution, the utmost care of the physician. It almost demands the trained skill of a specialist."*

In this age of rapid, cheap and comfortable traveling, the advantages to health of a change of climate should be considered by every person suffering from pulmonary or chronic disease, or broken health. It is a pleasant, and in many cases, a valuable remedy, if judiciously advised. "It would be difficult," says Sir James Clark, the standard authority on climate, "to point out the chronic complaint, or even disordered state of health which is not benefited by a timely and judicious change of climate." The diseases most likely to be benefited or cured by change of climate, are phthisis, laryngeal and bronchial affections, asthma, disorder of the digestive organs, chronic gout and rheumatism, affections of the kidneys, and broken health. A change of climate is beneficial to strumous children, is invaluable during convalescence from acute and chronic disease, and more especially is it one of the chief resources of restorative medicine.

A large majority of patients require a moderately warm, dry and bracing atmosphere, and the few demand a warm, sedative climate, where the atmosphere is not alone warm, but humid; and here steps in that knowledge that should be possessed by medical men who recommend climatic

*Florida and the South—D. G. Brinton, M. D., Philadelphia, 1869, p. 120.

change as a remedial agent. A moderately warm, dry and bracing air, with but few sudden and great atmospheric changes, is especially adapted to tuberculous disease in its early stages, catarrh, chronic bronchitis, chronic rheumatism, debilitating mucous discharges, renal diseases, dyspepsia, and some cases of asthma. A moist, warm and sedative climate is best adapted to many cases of advanced phthisis, dry asthma, chronic bronchitis, accompanied with great irritability of the pulmonary mucous membrane, and hard, dry cough. The particular locality, or what climate shall be chosen for a winter resort in any given case, is a matter of great importance, and should not be based on this or that letter or publication. Facts, figures, experience and favorable factors of climate should determine the question. An error in this direction may be fatal, and before a physician advises a patient to resort to any particular locality, he should carefully investigate each particular case, arrive at a correct diagnosis, and familiarize himself with the factors of each winter resort. Many an invalid who would be restored to comparative health, or at least survive for years, if he wintered in a temperate climate, is sent to a region where zero is frequently reached, where atmospheric changes are frequent and great, and where the patient is confined to heated rooms for days together, and debarred from taking exercise and enjoying the health-giving influence of sunlight and pure air. Others are sent to a warm and relaxing climate, when they require a temperate, dry and bracing one. Fashion and the influence of some leading physician have much to do with this.

In this active business country we find many persons who have been overworked and present a breach in the chain of those vital processes, whose continuity constitutes health—a condition popularly known as "broken health." The physician is unable to point out any special abnormal condition of any particular organ. The invalid cannot picture his symptoms, for there is no marked pain, and no particular function of life that is abnormal. The patient feels himself less capable than formerly of transacting the ordinary affairs of business; little things annoy him; a small amount of exercise tires him, his night's rest is insufficient, he suffers from distended bowels, he is uncomfortable after meals, symptoms of defective circulation are manifested, his knees and ankles become stiff, he has pains in the back and sides, the tongue is somewhat furred in the morning, the complexion loses its transparency, after a time slight deafness or imperfection of vision occurs toward night; in spite

of debility, the patient sometimes grows fat; the nails become brittle; the urine is generally pale and scanty, and, if examined microscopically, will frequently be found to contain numerous chrystals of oxylate of lime. In some instances, the sufferer applies to a physician, and as the symptoms are mainly negative, he is treated for "biliousness," "nervousness," or "dyspepsia," three convenient cloaks for professional ignorance. Failing to obtain relief, the patient flies to quack medicines, and tries "bitters," "liver regulators," and "mandrake pills." The patient is simply suffering from "broken health," or, more correctly speaking, "general degenerative diathesis."

Unless judicious treatment is adopted, the heart becomes dilated, atheromatous change occurs in some of the arteries, cerebral throbbing, weakness and irregular action of the heart, atropic paralysis of a limb. Bright's disease, chronic bronchitis, chronic inflammation of the stomach or colon, or other serious affection becomes established. As local diseases, the sequence of broken health (general degenerative diathesis), proceed very slowly to an incurable stage, they give much encouragement to the medical man to hope for a cure, or at least the possibility of arresting diseased processes, and making the patient comfortable for years. The primary cause which seems to underlie the series of conditions and changes referred to, is weakness of the circulation, the result of overwork, sedentary occupations, anxiety of mind, debauchery, or laziness. To relieve such cases, climatic change, suitable exercise, fresh air, sunshine, absence from the harassing strain of business, proper food and rational medication are demanded.

If such a course is adopted, in a limited period, the pulse will beat regularly and stronger; the heart impulse will be felt by the hand; instead of prostration after exercise, there will be a healthy weariness; cold sweats will cease, swelling of the extremities will disappear, digestion will be properly performed, and in time the patient will be restored to health or comparative comfort. And in Florida, the worn-out man of business, suffering from "broken health," will find the necessary relaxation from "brain fag," opportunities to take out-door exercise, plenty of sunshine, pure and bracing air, and other necessary adjuncts to relieve a condition affecting the many. In this connection, I cannot refrain from referring to what I consider an important fact. From my observations in the United States and in foreign lands, and in hospital as well as private practice, I have been forced to notice the infrequency of chronic disease and broken health

in Florida. In my visits to various portions of this State, I have met with many persons, old and young, who live from year to year on improper food, and who drink water from shallow holes, near marshes, and yet, singular to say (although such persons are somewhat anaemic), they do not present any manifest diseased condition. In cities, towns, villages, and rural districts, where residents are supplied with proper food, and drink pure water, a case of chronic disease or broken health is seldom met with. And if we have a climate in which these conditions rarely occur, are we not justified in concluding that it will exert a powerful influence in restoring the invalid to health? As most of you are aware, I have, at various times, visited many portions of the State, and have been surprised to meet so many persons who have settled in it as invalids and have been restored to health or comparative comfort by the climate—a large proportion of them having been sufferers from pulmonary diseases. And what surprised me most, was the fact that none of their offspring manifested any constitutional predisposition to pulmonary disease. Independent of uterine diseases among females, so common in every civilized country, and constitutional syphilis among colored people, I will ask you if your experience will not bear out my statement, and if your practice among residents is not almost exclusively confined to acute and not chronic disease and broken health? If this is a fact, it would appear that the climate is peculiarly adapted to the cure of such conditions, and have we not a potent agent to use, and if used aright, to benefit suffering humanity?

Many persons residing in the Northern and Western States suffer from what is known as winter cough—a cough limited to the winter season, or much aggravated by it. This troublesome symptom may be the result of bronchitis emphysema, naso-pulmonary catarrh, follicular disease of the pharynx, chronic thickening of the pulmonary mucous membrane, or other pathological condition. The investigations of Drs. Dobel, Green, C. T. Williams, and Pollock, of London, and others, establish the fact that pulmonary consumption frequently results from one of the above conditions. Dr. C. T. Williams, Physician to the Brompton Hospital for Consumption, London, remarks: "A catarrh creeps down the bronchial mucous membrane and eventually reaches some of the alveoli. Here rapid proliferation of epithelium (lymphatic endothelium) occurs, which is the more irritated and prone to multiply, owing to the inhalation of some of the bronchial secretion. The alveoli become

choked and stuffed with epithelium, and the vessels may be emptied through pressure; ulceration may follow, and the whole mass may liquify, caseate and become expectorated."*

From the rapid advances made in pulmonary pathology within the last decade, it is self-evident that something more is required of the medical man than the relief of cough or the administration of cod-liver oil and expectorants—that he should possess an accurate and exhaustive knowledge of pulmonary diseases, and treat diseased conditions and not symptoms. It is time that physicians abandoned the older doctrines of the specificity of tubercle and phthisis, which undoubtedly exercised an unfavorable influence upon treatment. Within a recent period, owing to accurate investigations, there has been a gradually increasing tendency to regard phthisis as an inflammatory affection, and there has, consequently, been a corresponding tendency to attempt, by treatment, to prevent the occurrence and control the influence of bronchial and pulmonary inflammation. "We do not even yet," remarks Dr. Green, Physician to Charing Cross Hospital, "sufficiently recognize the fact that the development of phthisis is determined and the progress of the disease influenced by the ordinary causes of inflammation; and the results of pathological investigation indicate, I think, the advisability of directing our treatment still more closely with the object of preventing and controlling all inflammatory processes in the lungs. Of all the teachings of our pathology, this is undoubtedly, by far, the most important."† According to Hirsch, "This much is firmly established, that catarrhal affections of the respiratory organs, other things being equal, are the more frequent the farther we proceed from the tropics towards higher latitudes, and that the maximum of their frequency in different portions of the frigid and temperate zones, is found in general, where *frequent*, *sudden* and severe variations of temperature occur, in addition to the prevalence of a moist and cold climate."‡ When treating of bronchial catarrh, Dr. Riegel, Medical Director of the City Hospital of Cologne, says: "It is not to be denied that there is a class of individuals who, despite all precautionary measures, always become affected with catarrh after the slightest exposure and at every sudden change of weather. For such persons,

*Clinical Lectures on Phthisis, delivered at Brompton Hospital, London. Brit. and For. Medical Journal, March, 1778.

†Green on Consumption, London, 1878, p. 99.

‡Handb. Hist. Geograp. Path. Erlangen, 1862.

the choice of a tolerably mild residence, of equable temperature, often affords the only certain prophylactic. For persons who suffer from bronchial catarrh every winter, nothing can be recommended more urgently than resort to a milder climate for several winters. Many localities are suitable for this purpose, and in general, those are to be recommended which have been found suitable as winter residences for consumptives."*

When any condition of the air passages exists calculated to induce phthisis, or when a marked predisposition is present, climatic change is worthy of consideration. Dr. Dobel, consulting physician to the Royal Hospital for Diseases of the Chest, London, states that, "In 72 per cent. of cases of cough he had analyzed, he found the disease had been aggravated by fresh colds, caught either by, 1, sudden changes of temperature; 2, fogs and damp air; 3, draughts of cold air; 4, getting wet; 5, wet feet."† At p. 177, he remarks: "The tuberculous diathesis adds frightfully to the perils of all catarrhal affections and will claim our attention on this account, rather than a cause of winter cough. When the constitutional tendency to consumption is at all marked, we shall have to be constantly on our guard against the occurrence of local congestions and inflammatory attacks of catarrh, for *whatever increases the vascularity of an internal organ* in the tuberculous diathesis, involves the risk of tubercularization of the affected part. And again, when we discover physical signs of that lung-disintegration, which is one of the serious effects of repeated and neglected catarrhal attacks, grave as its importance must be allowed to be under the most favorable diathetic conditions, the co-existence of a tuberculous predisposition at once invests it with all the horrors of advancing consumption of the lungs, and will necessitate a change of climate entirely ruled by this consideration. To prevent the winter cough from running into consumption will be the first consideration, in the climate as well as in every other form of our treatment of the case." When referring to the influence of cyclical conditions as productive of phthisis, Dr. Smith, Physician to the Hospital for Diseases of the Chest, at Brompton, remarks: "The evils of the season [winter] will, however, be the tendency to internal congestion and inflammation, the *increase* of cough from irritation of pharynx and air passages, induced by the inhalation of cold air; the tendency to haemoptysis

* Ziemsen's Encyclopedia of Prac. Med., pp. 410, 413.

† Dobel on Cough and Consumption, 1877, p. 143.

from increased cough, irritability of the mucous membrane and congestion of the lungs, and deficiency of temperature from the cold. If a patient be restricted to an artificially heated atmosphere, he will have the evils of dryness, stillness and impurity of the air. In selecting a foreign winter and early spring residence for the class of patients under consideration, we must seek for the conditions which will enable the patient to spend his time in the open air, and such are the temperature, dryness of the air, and the violence of the winds. Speaking generally, those climates will be the most suitable in which the air is *not moist, the temperature never very high nor low, but uniformly sustained.*" *

There is a period in man's existence when no actual disease is present—when the body gradually yields to the advances of old age. With the majority, this occurs between the fiftieth and sixty-fifth years, and it has long been noticed that the winter months are especially dangerous to persons advanced in years. The following passage from the London *Times and Gazette* for February 22d, 1879, illustrates the action of a severe winter in causing mortality: "The quarterly return of the Register General for the period ending December 31st, last, affords convincing proof of the fatal effects of the late severe winter upon all ages of the community. The largest proportional excess in mortality occurred among persons aged upwards of sixty years. The death rate at these ages was equal to 83.7 per 1,000, and was considerably higher than in any corresponding quarter since 1870. The death rate among persons aged upwards of sixty years, in the twenty large towns, during the December quarter, averaged 89.6 per 1,000. Taking the mortality of the mild autumn quarter of 1877, as a standard of comparison, the excess of mortality last quarter, due to the low temperature, may be stated in the following manner: Among persons of all ages, the excess was equal to 12.4 per cent.; it was 8.8 per cent. greater among infants under one year of age; 7.8 among persons aged between one and sixty years, and so great as 24.7 *among persons aged upwards of sixty years.*"

Morbility, that is to say, the probability of becoming sick, is marked during the great climacteric, and the diseases which occur during this period are of a severe and fatal character. The table of Quetelet illustrates the liability to disease in those advanced in years:

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*Smith on Consumption, pp. 200, 203.

Age.	Deaths in 10,000	Probable Duration of Life. Years.	Probability of Death.
30	61	34.78	0.0106
45	69	27.16	0.0135
50	80	19.73	0.0182
60	114	12.83	0.0330*

Residents of cold and changeable climates are subjected to great and sudden atmospheric changes, deprived of sunlight, fresh air, sufficient exercise, and are daily poisoned by heaters, the elements resulting from the combustion of coal gas and impure air from sewers. It is an undisputed fact that the winter months in cold, and more particularly changeable climates, are especially dangerous to persons between fifty and seventy years of age. The old Romans had this pregnant expression: "*Inimicus senibus hiems*"—winter the foe of the aged. In discussing the action of cold on the system, Dr. Osgood, of Boston, no mean authority, remarks: "But while the internal heat is economized, the heart and blood vessels are exposed to serious dangers which are due to high pressure. If the heart be weak, the sudden call upon it for more vigorous action may paralyze it; the danger especially applies to the aged, to whom, besides, the blood vessels are liable to be weak and brittle. When, therefore, cold weather comes on abruptly, sudden deaths among the fragile and aged are common, the cause being apoplexy, or arrest of the heart, perhaps congestion of the lungs. Another evil effect of sudden cold, or even chill, is checking perspiration. The result may be pneumonia, pleurisy, bronchitis, rheumatism or kidney trouble, with their train of dangerous and too often mortal after-effects." †

In treating of temperature as a cause of disease, Wagner, p. 60, remarks: "As regards the nature of disease, we can say with accuracy that the respiratory organs suffer more in winter and spring than in summer." The able writer on Consumption and Climate, Dr. Bennett, states: "According to the Register General's Reports of the British Isles, and the mortality register all over the world, the healthiest winters are those that have the highest temperatures. The years of greatest mortality are those in which extremes of cold in the winter are reached. In temperate climates the deadliest seasons are those of greatest cold. Extreme heat

* Wagner's Pathology, 1877, p. 45.
† Winter and its Dangers, H. Osgood, M. D., 1879, pp. 13, 14.

and extreme cold not only interfere with the equilibrium of functional activity, throwing a strain on some of the vital functions of animal life to their serious risk and danger, but necessitates modes of existence detrimental to the healthy performance of these functions. Thus in very cold climates such as St. Moritz, in the Engandine, and St. Paul, in Minnesota, United States, which have been recommended of late for phthisis in winter as well as summer, invalids have to live in winter for by far the greater part of the twenty-four hours in badly ventilated rooms. When they go out they have to undergo the transition to a temperature thirty or forty, or even more degrees, less than that in which they live during the greater part of the twenty-four hours. Such confinement, such transitions, even much less marked ones, constantly give rise in all Northern countries in winter, to inflammatory affections of the mucous membranes of the air passages, to pneumonia and to pleurisy, and that in the healthiest members of the community. If it is so with the healthy, how can we expect those to resist such influences who are already diseased, who have morbid deposits, inflammatory, catarrhal, scrofulous, tubercular in their lungs, softened or not? How can those who have already local pneumonias, local pleurisies, expect to withstand their pernicious influences? Moreover, they do not live in the pure air they ascended to reach, but in an atmosphere vitiated by stove heating, by their own respiration, and by that of their companions."*

Dr. Day, an English physician, calculating from about 55,000 persons over 60 years of age, determined that the deaths in January were nearly twice as great as in July. This statement confirms the opinion of another distinguished statistician, "That waves of heat are waves of life, and waves of cold are waves of death." With these and a hundred similar warnings before us, remarks Dr. Brinton, "we are safe in saying that in many cases, entire relaxation from business, and two or three winters in a warm climate, about the age of sixty will add years to life." The importance of escaping the rigors and dangers of a Northern climate is being appreciated by the aged as is evidenced by the thousands of persons who annually visit Florida. In my winter visits to this State from 1865 to 1875, I found the majority of the visitors to be invalids, tourists and sportsmen, but my observations during the past and several preceding win-

*Treatise on Pulmonary Consumption, J. H. Bennett, M. D., 1879, p. 70.

ters establish the fact that the majority who visit this State are advanced in years and migrate with the birds to a land where

> "The gentle wind, sweet and passionate wooer,
> Kisses the blushing leaf."

Climacteric delay is obviously the concatenated phenomena arising from that exhaustion of the vital energies which takes place at a more or less advanced age, in consequence of the cares, turmoils and physical exertions dependent on existing states of society, particularly among the middle classes. The exhaustion manifesting itself especially in the functions which are most intimately related to and concerned in the perpetuation of the vital endowment of the frame. As this decay of the vital energies—this breaking up of the constitution, as it is commonly found, is necessarily experienced by the whole frame, it is obvious that it may not only be hastened by whatever is either mentally or corporeally injurious, as well as specific forms of disease, but that it will be more or less remarkably evinced in those organs which have especially suffered during previous attacks of disease. Hence the complicated states in which senile decay is usually observed, and the rapid progress and unfavorable issue of such maladies appearing about the climacteric period. To obviate the occurrence of disease at this period of life, a change from a cold, moist and changeable climate, to a dry and temperate one, will prove advantageous. Dr. Madden remarks that "in some of the diseases peculiar to advanced age, change of climate will be the best adjuvant to husband out life's taper to its close."

The word climate in its common signification indicates a region bounded by certain arbitrary lines, but in medicine it possesses a wider meaning. The effect of climate upon the human system is the sum of the influences which are connected with many factors. The climate of any locality, professionally speaking, depends upon its temperature, atmospheric vicissitudes, prevailing winds, humidity, its elevation above the sea level, its proximity to the ocean or oceanic currents, its contiguity to mountains, lakes, rivers, arid areas, soil, drainage, vegetable productions, malaria, general sanitation and other factors, which we shall briefly consider.

In his investigations, Dr. Jones overlooked Russia, where the "Ice King is" in all his majesty and strength, or else he would have referred to the following figures: In Russia,

from 1857 to 1859, the general mortality from phthisis was 164 in the 1,000. In the *most northern provinces*, that of Archangel, the mortality was 190 in 1,000, and in Wologda, 204 per 1,000.* "In St. Petersburg it is very common." †

At p. 274, Dr. Jones asserts that "*North* Sweden and Norway are likewise almost exempt from a disease [phthisis], which carries off one-tenth of the population of the tropics." According to the eminent authority, Dr. Lombard,‡ the mortality from phthisis in the northern towns of Sweden is 147 in a thousand; in those in the center, 125, and in those in the south, 131. Norway presents the same high mortality from phthisis, 130 in 1,000. In Denmark the mortality from phthisis is 122 per 1,000, nearly the same as in London, where it is 121. At p. 274, Dr. Jones states that phthisis "carries off one-tenth of the population in the tropics." If we are to accept this statement as fact and the figures of the eminent Dr. Lombard as reliable, Dr. Jones "is out of his latitude."§

In the language of Dr. Copeland: "As to the climate of different countries, and as to the influence of situation and locality, either in favoring or in preventing the prevalence of phthisis, our knowledge is altogether imperfect. Much that has been asserted on this subject is more or less inaccurate, the inaccuracy being often in proportion to the dogmatism with which the matter is treated."

Temperature is an important factor in climate, and a very large proportion of the profession, who have made a special study of pulmonary diseases, advocate a dry, sunny and temporate climate for their successful treatment. In view of the great dissemination of phthisis throughout all zones, and the marked percentage of mortality ("nearly two-sevenths of all deaths resulting from this disease"), it is exceedingly important that correct opinions should prevail with regard to its treatment. The importance of laboring to check this disease and limit its mortality, is an urgent

* Bennett, Pulmonary Consumption, pp. 116 117.

† Hogner's Geul. Pathology, New York, 1877, p. 72.

‡ Traite de Climatologia, vol. 2, p. 110.

§ At p. 274, Dr. Jones remarks, when discussing the infrequency of consumption in cold climates: "That it has lately been shown that the farther we progress north, the greater immunity the inhabitants enjoy from consumption." The writer uses the word "lately," and all his evidence can be found in Copeland's Medical Dictionary, published in 1858. In fact, in many cases the language is copied. If the gentlemen had made quotations from Lombard and Bennett whose works have been "lately" published, his position would have been untenable.

necessity, more especially when there is a growing demand for more attention to the preservation of health, and when the conviction is gaining ground that this is an important function of medical science.

The modern professional view that a *temperate, dry and sunny clime* is best adapted to the treatment of a large proportion of pulmonary diseases, is one of the most valuable contributions that modern science has made in the treatment of such diseases. It may be stated as a general rule, that pulmonary diseases are more frequent in cold and changeable climates than in those that are moderately warm and dry. The climatological distribution of pulmonary diseases in the United States, is illustrated by the following table from Blodgett's Climatology:

	Deaths by phthisis.	Per cent. of entire mortality.	Deaths by disease of respiratory organs.	Per cent. of entire mortality.
Maine	1,702	22.4	2,074	27.35
New Hampshire	924	21.84	1,092	25.82
Vermont	751	24.09	884	28.24
Massachusetts	3,426	17.65	4,418	22.77
Connecticut	968	16.75	1,280	22.31
Rhode Island	470	20.92	572	25.52
New York	7,890	17.04	10,846	23.42
New Jersey	915	14.15	1,176	18.19
Pennsylvania	3,520	12.83	4,521	16.80
Delaware	118	9.76	185	15.30
Maryland	1,101	11.44	1,679	17.34
Virginia	1,616	8.48	3,540	18.56
North Carolina	562	5.83	1,688	16.60
South Carolina	269	3.84	1,163	16.69
Georgia	279	2.80	1,334	13.44
Florida	43	4.61	108	11.60

The above figures do not properly represent the mortality from phthisis originating in this State, for they do not indicate the number of deaths occurring among invalids who came to the State in the last and incurable stages of phthisis. "From the United States census tables and other statistics, the fact is developed that phthisis in the United States progressively decreases from Maine to Florida. Dr. Lawson, Surgeon-General United States Army, sets down the mortality from tubercular consumption as three times greater in the Northern than in the Southern States."* To illus-

*Aitkin's Practice of Medicine, Vol. 2, p. 788.

trate the frequency of phthisis in the United States Army, at a few stations, from 1840, to 1859, inclusive, we will quote the following figures:

Coast of New England	4.6
Harbor of New York	5.6
Great Lakes	4.5
Middle Interior, West	3.7
South Atlantic	7.9
South Interior, East	6.9
California, Southern	4.9
California, Northern	5.4
Atlantic Coast of Florida	2.7

To illustrate the frequency of pulmonary diseases in the United States Army, at a few stations, we shall quote from Dr. Brinton's work, p. 128. The relative frequency of phthisis, bronchitis, pneumonia and pleurisy (omitting fractions) was as follows. One man came under the surgeon's care, for one or other of these diseases:

In Arkansas, one in	16
In Texas, southern frontier, one in	16
In Baton Rouge, La., one in	17
In St. Paul, Minn., one in	19
In Florida, eastern coast, one in	87

To illustrate one important factor of climate—temperature—I shall quote from the official records of the Signal Service of the United States Army for the months of November, December, January, February and March, regarding the temperature at certain points, recommended as health resorts. We shall confine ourselves to a great extent to official records, as far as the United States are concerned, for in some instances private observers are not educationally qualified; in some cases it is questionable if their instruments are reliable, and it is possible that, at some points, instruments may be placed in positions where favorable conditions can be secured:

	Years.	November.	December.	January.	February.	March.	Mean for 5 months.	
Cannes, Mediterranean	3	54.6°	48.8°	48.5°	49.4°	52.8°	50.8°	†
Nice, Mediterranean	3	53.8	48.5	47.0	48.4	51.8	49.9	†
Mentone, Mediterranean	3	55.2	50.5	48.8	50.4	53.4	51.6	†
Nervi, Mediterra'n..	3	55.2	47.8	46.2	47.8	49.0	49.2	†
Nassau, N. P.....	1	75.7	72.3	72.2	71.9	74.4	73.3	‡
Atlantic City, N. J.	4	45.3	35.3	32.2	33.2	37.1	36.6	§
Augusta, Northern Ga.....	4	54.9	47.6	48.1	49.6	57.	51.4	§
Breckenridge, Minn.	5	17.3	13.4	6.8	13.1	18.9	13.9	‡
Duluth, Minn.....	4	28.8	21.6	12.4	19.2	25.7	21.5	§
St. Paul, Minn.....	5	28.8	20.0	13.0	19.4	27.6	21.7	§
Key West, Fla.....	5	74.5	70.5	70.5	71.7	73.8	72.2	§
Punta Rassa, Fla....	5	69.7	64.8	65.5	65.9	69.8	67.1	§
Jacksonville, Fla....	4	62.1	55.8	56.2	56.9	62.7	58.7	§
Aikin, S. C.....	5	54.7	46.7	46.4	47.5	56.4	50.3	‖
Los Angeles, Cal....	1	62.1	55.3	54.1	54.6	55.8	56.3	§

An examination of the Signal Service Reports shows that in St. Paul, for the five cold months for five years, that the minimum temperature was 10 deg. and below on an average of fifty-seven days in each year. In a climate with such a low range of temperature for weeks together, patients suffering from pulmonary diseases cannot take exercise in the open air, but must of necessity remain in artificially-heated rooms. Farther comment on such climatic treatment of pulmonary invalids is unnecessary. Why send a patient from a place like Boston, Massachusetts, with a cold and dry winter climate, to Minnesota, with its almost arctic cold, sudden and great vacillations of temperature and a higher mean relative humidity? Instead of sending patients to hyperborean regions, it appears to us more rational to consign them to localities possessing a moderate temperature, where there is sunshine, and where fresh air, uncontaminated by human exhalations or other noxious effluvia, may be breathed, and where the quiet of Nature, the blooming of flowers, the singing of birds, the babbling of brooks, will often produce marvelous improvement of health.

† The Riviera, by E. T. Sparks, M. D.
‡ Compiled from Records of Mil. Hosp., by G. A. Osborn, Esq., for Author.
§ Signal Service Reports.
‖ W. H. Geddings, M. D., Aiken, S. C.

It is a remarkable fact that professional men refer a large proportion of cases of pulmonary diseases they are called to treat during the cold months, to "cold" and "vacillations of temperature." Yet in the face of these daily expressed opinions, some few consign their patients suffering from these diseases to moist, cold and changeable climates for their relief or cure. Dr. James H. Bennett, p. 70, says: "The seasons of least mortality in the year, are those in which the temperature is neither extreme in one sense nor in the other, conversely, the seasons of greatest mortality are those in which extremes of cold in the winter and heat in the summer are reached. In temperate climates the deadliest seasons are those of greatest cold." Dr. G. Wilson (Health, and Healthy Homes, Philadelphia, 1880,) remarks, "Foremost among the uncontrollable causes of disease, are atmospheric changes dependent upon seasonal variations. For example, a sudden fall of temperature is sure to be followed by a long train of ailments, such as catarrh, influenza, bronchitis, and other forms of lung diseases."

Until a recent period a warm, moist and sedative climate was advocated for the treatment of phthisis, but since medical doctrines have changed, and the leading minds in the profession advocate the importance of a dry, temperate and bracing climate—since "Vitalistic and sthenic views of treatment prevail, and are found to give infinitely more satisfactory results than those that followed antiphlogistic treatment, the medical mind in America and in Europe, looks about for a cold climate. As usual, the pendulum has a tendency to the other extreme—to go from a tropical climate to the ice-covered summits of the Swiss mountains, to the frozen plains of Northern America. Many minds can never constitutionally follow the golden adage, *Medio tutissimus ibis.* They cannot remain in the middle of the road, they must pass from one extreme to the other."—*Bennett.*

Dr. Jones, of St. Paul, Minnesota, in his "Plea for Cold Climates in the Treatment of Pulmonary Consumption," uses the following language: "When we begin to enquire into the character and comparative merits of climate, we are at once struck with the fallacy of the doctrine which has obtained for generations, that the disease is more frequent in cold than in warm climates. *Just the reverse of this is true.* From an extensive series of data, it has lately been shown that the farther we progress North, the greater the immunity the inhabitants enjoy from consumption. It is well known that far up in the North where the Ice King is,

consumption is either extremely rare or altogether unknown. In the bleakest, coldest and the most exposed portions of the globe, where winter well-nigh continuously exists, and where sudden and severe changes of the atmosphere hold to a maximum, consumption is very infrequent. Indeed, so true is this, that we are forced to the conclusion that extreme cold is inimical to the production of consumption." To prove that this statement does not apply to the United States, we will quote from Aitkin's Practice of Medicine, vol. 2, p. 788: "From the United States census tables and other statistics, the fact is developed that phthisis in the United States gradually decreases from North to South. It originates far less commonly in the southern than in the northern regions; it gradually but perceptibly diminishes from Maine to Florida. Dr. Lawson [Surgeon-General United States Army] sets down the mortality from tubercular consumption as three times greater in the Northern than in the Southern States."

At page 284, Dr. Jones lays down the following proposition: "The most unfavorable climate possible for the consumptive patient is one of uniform high temperature." If these views regarding a "high temperature" and the "Ice King" are correct, Dr. Jones should recommend patients to avoid Minnesota during the warm months, and seek a region where the "Ice King is."

Under existing circumstances it is difficult, if not impossible, to arrive at any positive opinion regarding the prevalence of phthisis in any zone or altitude; even at the best, an approximation to the truth is all we can expect. In forming an opinion of the adaptability of any climate for the treatment of phthisis we should consider climatic factors, weigh well the mortality from phthisis, ascertain the effects of climate upon invalids who have resided there for years, and obtain the views of experienced and intelligent physicians resident in such climate.

In advocating the advantages of this or that climate or altitude, writers overlook the influence of food, the immunity from phthisis in some races; the prevalence of phthisis in the Caucasian race, and the crosses of this race with the negro and other dark races. The length of time the locality has been settled, the crowding of persons in towns and cities, habits and occupations of residents, and numerous other important points in the etiology of phthisis. Dr. Rush remarks (Med. Enquiries, vol. 1, p. 37), that "pulmonary consumption is unknown among the Indians in North America." As the Indians inhabited each State in the

Union, we might use it as an argument to prove that high or low altitudes are favorable for the climatic cure of phthisis. Such a line of argument would appear ridiculous; yet writers of to-day use such arguments to establish their theories. In support of this theory that phthisis is more prevalent in warm than cold climates, Dr. Jones makes the following statement: "In Nova Scotia and New Brunswick, where the temperature is very low, the disease is less frequent than in Jamaica," and cites the British army reports as authority. To illustrate how much dependence there is to be placed in this statement, we shall quote from the tables of Dr. G. T. Balfour, compiled from the Reports of the British War Office, with regard to the admissions and deaths from tubercular disease among British troops per one thousand mean strength at a few points:

Nova Scotia, Etc.		Jamaica.		Great Britain.		Madras.		Bombay.	
Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
14.	2 29	5.	1.96	19.	3.48	16.	1.88	9	1.58

One argument advanced by a few physicians in favor of cold climates as a winter resort for invalids, is the fact that the respiratory process is more perfectly performed in cold than in a warm climate. This doctrine may apply to persons who are able to resist the influences of cold; but the question arises, how many invalids who are suffering from pulmonary disease can safely use this climatic remedy? A large majority are injuriously affected by a low temperature and great and sudden thermal changes, and remain indoors in heated rooms, and take no exercise in the open air, unless the thermometer rises to 40, or above, and the very object for which they visit a "cold and invigorating climate" is defeated. Exercise increases respiration, appetite, innervation and assimilation, and it can only be safely and regularly taken where there is a dry atmosphere and a favorable thermometric range. If the temperature is not too high or too low, patients can enjoy sunlight and fresh air, and take exercise out of doors without incurring the risk of inducing pneumonia, pleurisy or bronchitis. Opportunity to take daily exercise in the open air is a matter of vital importance to the invalid, and a climate should be

selected where this can be accomplished. To illustrate the influence of exercise in increasing the respiratory process, we shall quote from the excellent work on phthisis by Dr. Smith, of the Brompton Consumption Hospital, London. Dr. Smith's data are based on a large number of experiments upon the various kinds of exertion over the quantity of air expired, and from these we learn that taking the quantity of air inspired when lying and at rest as unity, the effect of ordinary exertion is as follows :

"Table showing the influence of exertion over the quantity of air inpired :

1.	Lying	1.0
2.	Sitting	1.18
3.	Standing	1.33
4.	Singing and reading aloud	1.26
5.	Walking at one mile per hour	1.9
6.	Walking at two miles per hour	2.76
7.	Walking at three miles per hour	3.22
8.	Walking at four miles per hour	5.0
9.	Horse exercise, walking	2.2
10.	Cantering	3.16
11.	Trotting	4.05"

The effect of the respiratory power is modified by the degree of the purity of the air. It has been abundantly proved by de Saussure, Falkland and Welsh, that the composition of the air at the highest attainable altitudes is identically the same with that found at the level of the low lands, but at lower levels there may be great diversity in the constitution of the air as the result of defective sanitation, or in badly ventilated apartments. In this connection we cannot refrain from referring to the published statements regarding the purity of the air of elevated sections. Such statements are merely calculated to mislead those who are ignorant of the facts in the case, for pure air can be obtained in temperate climates without ascending mountains. It has been asserted that at high elevations the respirations are quickened, and, as a consequence, the patient is benefited. It appears proved by the researches of M. Coindet, a French physician, in his Medical Letters on Mexico, that although the respirations are increased in number, less air is inhaled than in lower localities. M. Jourdanet, who practiced many years in Mexico, at an elevation of seven thousand feet, claims that it is detrimental to human health and life, bringing on amaemia, which he calls *Barometrical anoxyaemia*, the result of deficient oxygenation of the blood. M. Lombard, asserts that plethora and the inflammatory diathesis characterizes the pathology of medium alpine climates,

but recognizes anaemia in the higher regions from this cause.

Elevated localities have been recommended for phthisical cases, and the recommenders forget that the *air is rarefied, and that the amount of oxygen inhaled is much less than at a lower level.* One of the strongest advocates of elevated districts, Dr. Denison, of Denver, Colorado, says: "Then, aside from the susceptibility of the nervous system, the character and acuteness of the diseased conditions of the lungs, defective vital force, etc., the acclimatization is rapid and easy, or prolonged and uncertain, nearly in proportion to the amount of lung tissue involved—advanced age being usually considered an unfavorably modifier. This general statement makes the accimatization of individuals an accomplished fact after a reisidence of from *two weeks to two, or even four months, at the end of which period a somewhat accurate estimate* can be made of the effect to be expected from a prolonged residence in this elevated region."* From Dr. Denison's statements, it is evident that persons advanced in years, or whose lungs are seriously diseased, should not visit Colorado. If it requires from "two weeks to four months" before a patient can become acclimated at our Western mountain resorts, it appears like a dangerous proceeding to make the experiment. Two weeks, or four months, are all-important periods of time in the existence of persons suffering from pulmonary diseases. Such cases are not suitable ones for experiments in acclimatization; and patients should select a climate where such experiments are unnecessary.

In cold climates range of temperature, cold winds, snow, and bad walking interfere with the taking of suitable exercise, and innervation, nutrition and assimulation are interfered with to the injury of the invalid. A high range of the thermometer is objectionable in the treatment of pulmonary diseases, for in hot climates the number of respiration are diminished. The effect of the lessened number of respirations is to reduce the total respiratory action considerably. Rathry has shown that the average amount is in the temperate zone (temp. 54 deg. Fahr.) 239.91 cubic inches per minute, while in the tropics (82 deg. Fahr.) only 195.69 cubic inches were inspired, so that there is a difference of 38.65 cubic feet in 24 hours, or 18.43 per cent. in favor of a temperate climate. If 10 ounces of carbon are

*Rocky Mountain Health Resorts, C. Denison, A. M., M. D., Boston, 1880, p. 147.

expired in the temperate zone, only 8.157 ounces would be expired in the tropics. A high thermal range, more especially if associated with a moist atmosphere, interferes with physical exertion, and in this respect is injurious. Hence a climate like that of Nassau or Cuba is objectionable as a resort for pulmonary invalids, as the high range of temperature interferes with the respiratory function and the taking of exercise. From personal observation and a careful study of the subject in all its bearings, we feel assured that the most suitable winter resort for the invalid, as a general rule, is one possessing a moderate temperature, plenty of sunshine, a dry atmosphere, with opportunities to take daily exercise and inhale the pure air of Heaven. When referring to the action of hot and cold climates on consumptive patients, Dr. Fuller, Physician to St. George's Hospital, London, remarks: "Their organization is delicate, their constitutions weak, their extremities are often cold, they are pinched and prostrated by a low temperature, and they are susceptible of damp. To such persons a warm atmosphere is invigorating in the highest degree, and without its aid, medicine and the most carefully regulated diet are of little avail."* When referring to the evils of the winter season, Dr. Smith remarks: "The evils of the season will, however, be the tendency to internal congestions and inflammation, the increase of cough from the irritation of the pharynx and air passages, induced by the inhalation of cold air, the tendency to haemoptysis from increased cough, irritability of the mucous membrane and congestion of the lungs, and deficiency of temperature from the cold. If the patient be restricted to an artificially heated atmosphere, he will have the evils of dryness, stillness and impurity of the air, and will be apt to have night sweats from excess of clothing."†

I fully concede with Dr. Wilson (Health and Health Resorts, p. 26), that as a summer resort for phthisical patients, and "overworked nervous system, and prostrated physical frames, our Northwestern States of Minnesota, Wisconsin, Colorado, Nevada and Idaho, with their clear, bracing and tonic atmosphere, will bear a favorable comparison with either the Alps, Appenines or Pyrenees; yet it is my humble opinion that no section east of the Rocky Mountains presents so many thermometric attractions and climatic advantages for the invalid in the winter as Florida. If the

* Fuller on the Lungs, 1867, p. 484.
† Smith on Consumption, 1865, p. 200.

patient requires a dry, bracing and temperate climate, it can be found in this State; if sea air with its concomitant harshness is indicated it can be secured; if an interior climate is desirable it can be found; if a given case demands a warm and comparatively moist climate it is accessible. Owing to the facilities and comforts for traveling, and the equable temperature, a change can be rapidly and safely made from place to place. When referring to the adaptability of the climate of Florida to the treatment of pulmonary diseases, Prof. Lee, of Geneva Medical College, remarks: "We have already spoken of the mildness of the climate of this region of the United States. It appears to possess an insular climate not less equable and salubrious in winter, than that afforded by the South of Europe, and is, therefore, well adapted to the forms of pulmonary disease, as bronchitis and incipient phthisis as are benefited by a mild climate. *Mildness* and uniformity are the two distinguishing characteristics of the climate of the Florida peninsula. It is easily demonstrated, that invalids requiring a mild winter residence, have gone to foreign lands in search of what might have been found at home, an evergreen land, in which wild flowers never cease to unfold their petals."*

The therapeutic importance of sunshine as an element in the treatment of disease, is unfortunately too little appreciated by invalids. "Lombard tells us that light stimulantes and darkness impedes respiration, and through respiration, of course, animal heat and muscular activity. Moleschott proved this fact by experiments upon himself, and the scientists, Bidder and Schmidt, noticing that animals at rest produced more carbonic acid in daytime than at night, equalized the amount by depriving them of the influence of light." An Emperor once went to Diogenes as he was reclining in his tub, and inquired what he could do for him. Diogenes replied: "*Stand out of my sunshine.*" And when a physician advises a patient to spend a winter in a cold and changeable climate, the latter should exclaim, with Diogenes, "Stand out of my sunshine." Sunlight, in the language of Dr. Chambers, of St. Mary's Hospital, "is of importance to the invalid." And the invalid should remember the Italian proverb: "Where the sun does not enter, the doctor must." Dr. Maddon, who has made a special study of pulmonary diseases and climatic influences in their treatment, states: "That preference should always be given to those winter resorts which present the greatest inducements and oppor-

* Copeland's Dictionary of Medicine, vol. 1, p. 416.

tunities for *open-air exercise*, and no small part of the benefit desirable from removal to a Southern health resort results from the opportunities afforded in the latter of *being much in the open air*, instead of being cooped up within doors, as the patient would be during the greater part of the winter had he remained at home." *

Dr. Osgood, of Boston, no mean authority, remarks: "During the winter season we need every health-giving influence. Deprived of sunshine, we are less able to meet the stringent stresses of cold weather. Anything which lessens animal vigor, lessens also our ability to cope with the great changes in temperature, and the imperfect hygienic conditions to which winter exposes us. What sunshine is able to do for all life, may be seen in the joy of the birds, and increased activity of animals, and the greater vivacity and cheer which we feel when the sunshine returns to us, after days of absence behind the clouds. How we miss it when it is gone. How its absence (if prolonged) depresses us! Should we not learn the lesson and insist upon every ray of sunshine? Life in sunless rooms not only injures the bodily health, but most seriously depresses the mind. *Above all, sunshine should be given to the sick.* The progress of the illness, and the effects of remedies will then be a thousand fold more favorable."† And I will ask you, if invalids can secure the health-giving influences of sunshine and out-door exercise in a climate where the thermometer ofttimes approaches zero, and snow storms, fogs and cutting winds confine him to an artificially heated room? Persons suffering from disease require sunshine, a moderate temperature, plenty of fresh and pure air, and an opportunity to take out-door exercise; and where east of the Rocky Mountains, during the cold months, but in the "balmy South," can these conditions be secured? Dr. Denison, p. 59, remarks: "The conclusion of our thermometrical observations is well expressed by Dr. Schreiber, that pulmonary consumption is neither favored by a low temperature, nor prevented, nor cured by a high one." Although an advocate for elevated climates, Dr. D. unconsciously supports our position that a temperate climate, is the climate *par excellence* for the invalid.

Dr. Osgood remarks: "The objection to our climate (Northern States) is that its sudden changes from heat to cold, from dryness to chilly dampness, are deadly in their

* Health Reports, p. 7.
† Winter and its Dangers, Dr. Osgood, p. 121.

effects upon the exquisitely sensitive blood vessels of the mucous membrane of the lungs." If sudden and great atmospheric changes are productive of disease in healthy persons (and this is universally admitted), it is to be presumed that such conditions will injuriously affect the invalid. Extremes of cold and heat, are not conducive to longevity or health, and in this, as in everything else, we may say with the poet: "*Medio tutissimus ibis.*" The mean temperature of a health resort is of much less importance than the rapidity and frequency of transitions between the highest and lowest temperature, and preference should always be given (other things being equal) to that climate which possesses the most equable rather than the warmest climate."*

As thermometric range is a matter of great importance in the causation and treatment of disease, more especially pulmonary affections, we will give the ranges for the cold months at a few points, recommended as winter resorts:

	Years.	November	December	January.	February	March.	Mean for 5 Months.
Atlantic City, N. J.	4	45	48	48	48	46	47
Augusta, Ga.	4	49	49	51	48	50	49
Minnesota, 3 stations.	4	70	63	57	58	58	61
Florida, 3 stations	4	35	37	35	33	35	35
Colorado, 2 stations.	4&2	68	70	72	58	66	67
Los Angeles, Cal.	1	41	44	35	30	35	37

To illustrate thermal ranges for one year, we shall quote from the work of Dr. Denison, and add ranges for Florida obtained from Signal Service Reports for corresponding period:

	Mean Monthly Range.	Range of Monthly Means.	Annual Means.	Annual Range.
Atlantic City, N. J.	41	44.1	49.7	89.5
Norfolk, Va.	44	40.7	57.3	89.5
St. Louis, Missouri	53	57.4	54.2	117
Cheyenne, Wyo.	61.5	48.9	43.6	136
Denver, Colorado	60.5	53.7	49.2	131
Colorado Springs	63.5	47.7	46.8	123
Florida Peninsula.	29.7	19.2	73.4	50

* Madden, Health Resorts, p. 3.

The winter range at Atlantic City is comparatively low for a cold climate, but this advantage is counterbalanced by the low temperature and the high mean relative humidity. Aikin, S. C., has been landed as a winter resort for consumptives, and as we have been unable to secure official data regarding its thermal range, we have given the figures of Augusta, Georgia. As the points are not far distant, we have reason to believe that the data which will apply to one will apply to the other. When referring to the climate of Aikin, Dr. Walton, of Cincinnati, says: "We find there a monthly range which ensures the occurrence of frost frequently, and causes the invalid an infinite amount of care in adapting himself to these changes."* We spent the winter of 1844 and '45, and 1845 and '46, in Georgia, and our experience led us to believe that the climate is too changeable for the successful treatment of pulmonary diseases.

With regard to Aiken, S. C., we must express it as our opinion, that it is adapted to the climatic requirements of invalids in October, November, May, and a portion of June; but we believe a more suitable climate for invalids can be found for the intervening months. Much attention has been directed of late to the mountain sanitarium of Dr. Gleitsman, of Ashville, N. C., and we are of the opinion that as a spring, summer and autumn resort for invalids, it is worthy of notice and patronage. The Doctor himself is a highly educated physician, and eminently qualified to conduct such an institution.

Elevation of sanitary resorts has attracted much attention of late years, and a few writers have insisted upon the importance of elevated localities as a preventive and a cure for phthisis. Some advise an elevation of 1,200 feet; others recommend 2,500 to 3,000, and others insist upon 6,000 to 8,000 feet. And the question arises, who is right? In support of their views, they refer to the immunity from phthisis in the mountainous regions of Switzerland; and at an elevation of about 9,000 feet in the warmer portions of South America. But the advocates of high altitudes, have evidently overlooked the interesting and instructive work by Dr. Emil Muller, of Winterthur.† This work, from which we shall quote a few figures, is principally statistical, and gives an elaborate account of the mortality from phthisis in that country.

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* Comparison of European and American Climatic Resorts, G. Walton, M. D., Philadelphia, 1877.

† Der Verbreitung der Lungenschwindsutch, in der Schweiz, 1876.

"Average mortality from phthisis in the mountain regions of Switzerland:

ELEVATION.	FEET.	OCCUPATION.		
From	200	Industrial	10.2	
To	1,600	Mixed	7.6	23.8
		Agricultural	6.0	
From	1,600	Industrial	10.2	
To	2,300	Mixed	5.9	21.4
		Agricultural	5.3	
From	2,300	Industrial	4.7	
To	3,000	Mixed	9.6	17.2
		Agricultural	2.9	
From	3,000	Industrial	6.5	
To	3,400	Mixed	6.1	16.1
		Agricultural	3.5	
From	3,400	Industrial	9.8	
To	4,400	Mixed	7.5	22.8
		Agricultural	5.	
From	4,400	Mixed		7.7
To	5,000			
Above	5,000	Agricultural		4.11

These data are instructive, and negative the statement made of late years, that there is any special immunity from phthisis in the mountain regions of Switzerland. They show that a certain proportion of the population in the higher regions die as elsewhere from phthisis—the rate to a certain extent depending upon occupations in life. One of the highest factors among the industrial is 9.8 at an elevation of from 3,400 to 4,400. At 4,400 to 5,000 feet in mixed labor, the death rate from phthisis is 7.7; and among the agriculturists we find the mortality above 5,000 feet to be greater than at some lower altitudes.

These figures develop much of interest to the climatologist. At high elevations in cold climates during the winter months, persons are confined in imperfectly ventilated rooms, heated by stoves. Under such circumstances, respiration is imperfectly performed, and the products of retrograde changes are not perfectly eliminated—the health is impaired and phthisis is engendered. By living in winter on a Swiss mountain, or an elevated locality in the Northern or Northwestern States, the invalid is merely subjected to the climatic conditions of Archangel with a mortality from phthisis of 190 in 1,000, or of Wologda with a mortality of 204 per 1,000.

Phthisis appears to be rare in the elevated regions of tropical South America, and this is advanced as an argument for sending patients to an elevated locality in Europe and the United States. But unfortunately for the theory, the climatic conditions are entirely different. In Switzerland and the United States, the snow line is about eight thousand feet, and in tropical South America it is from thirteen thousand to seventeen thousand. Hence an elevation of eight thousand feet in Europe and the United States, is a totally different factor to that of a similar elevation in South America. In the latter country, at an elevation of even nine thousand feet, the climate is warm in summer, and temperate and bracing in winter—more closely resembling the climate of Florida than that of the elevated regions of Switzerland and the United States.

When advocating high latitudes, and referring to the absence of phthisis in this locality or that one, writers make no reference to race or the habits and occupations of the population. When they refer to the inhabitants of high altitudes in South America, they neglect to state that their houses and workshops are large and open, and that they are not subjected to sudden and great atmospheric changes, and are not confined in badly ventilated apartments, and daily and hourly poisoned by a contaminated atmosphere, the result of stoves and respiration.

Race as well as habits has much to do with the causation of phthisis. One argument advanced against warm and temperate climates is the great mortality among the colored troops in the British colonies. According to Dr. Livingstone, phthisis is almost unknown in Africa among the aboriginal tribes. Yet in tropical climates the mortality from phthisis among the colored troops is very great; but alcohol, exposure, syphilis and other factors can be made to account for the great mortality from this disease, in a race that enjoys an almost perfect immunity from it in an aboriginal condition under a vertical sun. In forming an opinion regarding climates, many factors must be considered, and altitude is of less importance than temperature, prevailing winds, dry soil, and a low mean relative humidity.

"With regard to the temperature of the air, it is absolutely certain," says Prof. Buhl, "that it is not the mean temperature of a place which regulates the frequency of catarrh or phthisis, but only the *larger, sudden and oft-recurring vacillations of temperature*, which the compensatory power of our body is unable to resist. Therefore the

temperature of the air, and its rapid vacillations must be regarded as exciting causes of inflammatory phthisis"* Atmospheric changes in the North and West are sudden and great; but in Florida they are infrequent and not extreme. At times, what are called "cold snaps" occur, but their visits are infrequent, and they seldom last over one, two or three days; and at any time the invalid can take exercise out of doors in the middle of the day. Owing to the low level of the land, the absence of snow and ice, and the warmth of the soil for a long distance to the north and west of this State, and the influence of the winds from the Gulf, the northerly and westerly winds are modified and robbed of their harshness and refrigerating effects before they reach Florida, and as a consequence they do not exert the same injurious influence that they do at points to the north and west of this State.

In reply to my circular letter, that accomplished observer and meteorologist, Dr. Baldwin, who has been in practice in this city for over forty years, remarks: "Stormy weather here is comparatively rare, sustaining a proportion of about one storm here to ten at the North and Northwest. The air here is remarkable for its purity, and the temperature renders it possible for the patients to take out-door exercise, so as to inspire the pure air."

The subject of winds is a matter of importance in estimating the adaptability of any climate as a health resort. The prevailing winds for the five cold months in Minnesota are from the north, northwest, and west. A reference to the Signal Service Reports shows that 453 observations were taken during November, December, January, February and March, at three stations in Minnesota, and north, northwest, and west winds were found blowing from these points 190 times. During the same period, and as a result of a similar number of observations at three stations in East Florida, the wind was found blowing from the east, southeast and northeast, 223 times. All are aware of the refrigerating effects of northerly and westerly winds in the North and West, and that during their continuance a majority of invalids must of necessity be confined to the house. The Apalachians interfere, to a great extent, with the course of northerly and westerly winds, and by the time they reach this favored land they are robbed of their injurious influences. At times these winds affect the northern and west-

* Letters on Tuberculosis, by Dr. Buhl, Prof. of Path. Anat. at Munich, Zolf Briefe, 1872, p. 146.

ern portions of the State, and several times during the winter slight frosts may occur. During some winters the mercury does not reach 32 deg. Fahr ; as evidence of this, I need but refer to the fact that the lowest temperature in this locality during the past winter was 34 deg.

Easterly winds have a bad reputation, and it is somewhat remarkable, that the Rev. C. Kingsley never visited Florida, and yet he wrote an ode to the east wind :

"Welcome wild northeaster!
Shame it is to see
Odes to every zephyr,
Ne'er a verse to thee."

In one section of the world, at least, easterly winds are not objectionable, and this is in Florida. On the Peninsula easterly winds are the prevailing ones in the cold months. During November, December, January, February and March, at three stations in East Florida, easterly winds, east, northeast and southeast were found blowing at 224 observations. Owing to the proximity of the Gulf stream, with its vast volume of heated water to the east of the coast, the easterly winds are robbed of their harsh and searching properties which characterize them in most localities. As an evidence of the influence of the Gulf stream thousands of miles from Florida, even after it has parted with much of its warmth, we need but refer to its effects in modifying the climate of the south of England and France. However objectionable easterly winds may be in other sections, in this evergreen State they are the opposite.

Precipitation of moisture in the form of snow and rain, is a subject worth consideration by the invalid. In the North and Northwest the presence of snow renders the taking of exercise a laborious and unpleasant occupation ; and when it melts and assumes the form of slush, walking entails the risk of wet feet, colds, and inflammatory affections of the lungs. In Florida, the winter is the dry season, and rains are infrequent. Owing to the character of the soil in a majority of places, the rain is absorbed as rapidly as it falls, and within a few minutes after a shower an invalid can walk out without incurring the danger of wetting the soles of his shoes.

One of the most important factors of climate in the treatment of diseases, and more especially affections of the respiratory organs, is a dry climate; and under the bare supposition that this or that is a dry climate, invalids are frequently consigned to an unsuitable locality. By some

peculiar process of reasoning, the masses have arrived at the conclusion that all cold or elevated localities possess dry climates. Hence we see advertisements of sanitariums, in which an elevation of 200, 500 or 1,000 feet is referred to as an evidence of "dryness of the air." But an unprejudiced examination of this subject will soon dispel the illusion. To illustrate the subject of "dryness of air" as dependent upon altitude, we will append a few figures from the Signal Service Reports for the years 1877–1878:

MEAN RELATIVE HUMIDITY.

STATIONS.	ALTITUDE.	NOVEMBER	DECEMBER	JANUARY.	FEBRUARY	MARCH.	MEAN FOR 5 MONTHS.
		per ct.	per ct.	per ct.	per ct.	per ct.	
Boston, Mass.....	142	68.0	61.8	66.6	68.2	63.7	65.6
Mount Washington, N. H.....	6,285	87.9	78.2	84.7	76.7	85.6	82.6
Alpina, Mich.....	600	81.9	83.1	82.9	73.5	79.6	80.2
Savannah, Ga.....	48	72.3	69.4	66.1	66.8	65.8	68.1
Omaha, Neb.....	1,000	73.7	77.8	78.6	73.0	66.8	73.5
Jacksonville, Fla..	22	71.8	70.0	67.8	68.5	66.4	68.8
Yankton, Dak.....	1,278	73.3	78.5	74.1	75.8	63.0	72.9
Breckenridge, Minn.....	966	76.9	83.2	76.8	81.8	79.5	79.6

In Boston, Savannah, and Jacksonville, we have three stations at very low elevations, and singular to say, the mean relative humidity of these places is very low. But the most amusing thing in connection with this subject is the fact that patients are sent from Boston, Mass., to Minnesota, because the air of the latter State is "dry and desiccating." It may be refrigerating in winter, but not "dry and desiccating." Its low winter temperature, and sudden and great thermal changes, may be productive of inflammatory affections of the respiratory organs, but if we are to accept the views of those who have made diseases of the lungs a special study, it is certainly unsuited to the climatic treatment of a large majority of pulmonary diseases during the cold months.

In discussing the influence of a high mean relative humidity as a cause of pulmonary disease, Sparks, p. 106, asserts: "That dampness of the atmosphere of a place—a high relative humidity, is a potent predisposing cause of

phthisis." On this point, Prof. Buhl, Zwolfter Briefe, p. 147, remarks: "The majority of districts in which phthisis is rife, are distinguished by a high degree of atmospheric humidity, while on the other hand, the places where it is rare are remarkably dry. As a fact, a large and constant amount of dampness in the air gives rise to the phthis cal constitution." Dr. Sparks, one of the latest and best authors on the influence of climate, and the cure of phthisis by climate, states: "Dampness of the atmosphere of a particular place—a high relative humidity is a potent predisposing cause of phthisis." Dr. Madden (Health Resorts, p. 4) remarks: "My experience as physician to three large institutions, have confirmed the observations in my first work, published several years ago, that there is no class of patients in whom we may more confidently hope for the beneficial effects of change of air than in the case of children predisposed to the scrofulous diathesis, or by hereditary taint to consumption. The climate chosen for the treatment of this predisposition to tuberculous disease, should be *dry, bracing and equable.*"

By some unaccountable means, the opinion has become widespread that "Minnesota possesses a remarkably dry winter climate," and as a consequence patients are deceived and sent from a drier one. An examination of the Reports of the Signal Service, in regard to Mean Relative Humidity in the United States, will establish the fact that Minnesota does not possess a "dry and desiccating climate"—in fact, Breckenridge, Minnesota, is remarkable for its humidity. Newspaper correspondents and some parties interested in hotels and sanitariums north of Florida, and physicians who are ignorant of climate, have announced to the world that "Florida is a foggy, changeable climate, reeking with moisture," when the opposite is the fact.

To place the subject of Mean Relative Humidity in a clear and unmistakable light, we shall freely use the material furnished by the Signal Service Reports, and not use data of private individuals, which are not always reliable. I will simply remark, that when the atmosphere is saturated with moisture, it is said to contain 100 per cent., when one-half or one-quarter saturated, 50 or 25 per cent., and when absolutely dry, 0.

MEAN RELATIVE HUMIDITY.

	Year.	November	December	January.	February.	March.	Mean for 5 Months.	Mean for 5 Months.
		per ct.	per ct.	per ct.	per ct.	per ct.	per ct.	per ct.
Mentone and Cannes*	3	71.8	74.2	72.0	70.7	73.3	72.4	
Nassau, N. P†	1	76.1	72.0	77.0	72.5	68.4	73.2	
Atlantic City, N. J‡	5	76.9	7[illegible]	80.6	7[illegible]	76.8	78.1	
Breckenridge, Minn‡	5	76.9	83.2	76.8	81.8	79.5	79.6	
Duluth, Minn‡	5	74.0	72.1	72.7	73.3	71.0	72.6	74.5
St. Paul, Minn‡	5	70.3	73.5	75.2	70.7	67.1	71.3	
Punta Rassa, Fla‡	5	72.7	73.2	74.2	73.7	69.9	72.7	
Key West Fla‡	5	77.1	78.7	78.9	77.2	72.2	76.8	72.7
Jacksonville, Fla‡	5	71.9	69.3	70.2	68.5	63.9	68.8	
Augusta, Ga‡	5	71.8	72.6	73.0	64.7	62.8	68.9	
Bismarck, Dak‡	1	76.6	76.4	77.4	81.6	70.6	76.5	
Boston, Mass‡	1	68.0	61.8	6[illegible].6	68.2	63.7	65.6	

It is nothing unusual to send patients from Boston, Mass., to Minnesota, because the opinion prevails that the air of the latter is "dry." The mean relative humidity for the five cold months in Boston is 65.6, and the mean for three stations in Minnesota is 74.3, 8.7 per cent. in favor of the former. Patients are advised to leave Philadelphia and secure the advantages of the "dry climate of Atlantic City." Yet the mean for Atlantic City is 78.1, and that of Philadelphia 73.9, a difference of 4.2-10 per cent. in favor of the latter. The public and a large majority of the medical men speak of Minnesota as possessing "a dry and desiccating climate," and Jacksonville "a moist and changeable one"—an "atmosphere loaded with moisture." But three stations in the former give a mean of 74.4, and Jacksonville 68.8, or 5.7 in favor of Jacksonville.

A French proverb is: "*On ne meurt que de betise*" (the common cause of death is stupidity), and it seems to be applicable to a portion of the profession, as far as a knowledge of climate is concerned. It is the great duty of the profession to prevent disease, and when it arises to relieve

* Reviera, Dr. Sparks, p. 9.

† From Meteorological Records of Military Hospital, Nassau, N. P., obtained for writer by A. O. Osborn, Esq.

‡ Signal Service Reports.

it by natural and harmless remedies in preference to drugs. And I will ask you how many physicians are familiar with the factors of any climate, and sanitary laws; and how many are competent to give a just opinion regarding the advantages or disadvantages of any given sanitarium or winter resort? To use the language of a learned legislator: "The physician is like Nebuchadnezzar; he dreams, and death is the sentence of him who cannot divine what that dream was." A physician simply recommends a patient to go to Florida, without carefully inquiring into the special conditions of the case, or determining if the patient requires a dry or moist climate, a bracing or relaxing one, a residence in the interior or on the coast, a high or moderate range of temperature, for all these conditions can be found in this State. The word "Florida" is sufficient, and the medical adviser is relieved of responsibility. These are matters of the gravest importance as affecting human life; and the time has arrived when our Medical Colleges should have a chair of Climatology and Hygiene, and render a knowledge of these subjects essential to graduation. At present, much ignorance prevails even in high places with regard to climate; and I will ask you what proportion of physicians who recommend patients to sanitariums and climatic resorts, can give intelligent answers regarding prevailing winds, diseases, temperature, thermometric range, atmospheric changes, water, soil, humidity and other important climatic factors.

Among the factors on which the development and progress of pulmonary diseases certainly depends, dampness of soil is an important one, and merits the consideration of physician and patient. Every agricultural engineer is aware of the fact that draining soil renders it warmer and more healthy. Sparks, p. 106, states: "A high relative humidity, especially when associated with a damp soil, is a potent predisposing cause of phthisis." Dr. Pollock, in his lectures at the Consumption Hospital, London (Med. Times, 1878), remarked: "Low, damp and ill-drained localities are those where the disease is most prevalent and fatal." A wet, cold soil is productive of pleurisy, pneumonia, bronchitis and rheumatism. In analyzing the cause of 1,000 cases of phthisis, Dr. Williams found that "14.2 per cent. could be traced to inflammatory attacks of the lungs." And according to Dr. Pollock, "a still greater number are preceded by rheumatism."—Sparks, p. 105.

Amongst the numerous valuable reports which Dr. Buchanan, in his official capacity of Health Inspector, submit-

ted to the Privy Council of England, there is perhaps none which is of more interest than his report on "The Distribution of Phthisis as affected by dampness of soil." Dr. B. ascertained that in certain towns that had been drained, that the mortality from phthisis had greatly diminished, and the rate of diminution was found to correspond with the extent of the drying of the soil. It was found that wherever the drying of the subsoil had been effected either by the construction of drain sewers, or by special drains, the mortality from phthisis had decreased from about 50 per cent. downwards. From a thorough and prolonged investigation of the subject, Dr. Buchanan determined that "there was much less phthisis among populations living on pervious soils, than among populations living on impervious soils." That there was "much phthisis with much wetness of soil, and little phthisis with little wetness of soil."

But the priority of investigating the influence of wet soils as a cause of pulmonary diseases, is due to Dr. Bowditch, of Boston, Massachusetts. In an address delivered before the Massachusetts Medical Society, in 1862, Dr. B. remarked that "Medical opinion in Massachusetts, as deduced from the written statements of physicians of 183 towns, tends to prove the existence of a law in the development of consumption in Massachusetts, which law has, for its central idea, that the dampness of the soil of any township or locality is intimately connected, and probably as cause and effect with the prevalence of consumption in that township or locality." "But, in addition to phthisis, there are other diseases whose prevalency is largely affected by dampness of soil. Thus, rheumatism, catarrhal complaints and ague are especially common in damp districts. An undrained or damp state of soil is fully proved to be highly inimical to health, and according to Mr. Simon, it answers to the legal definition of the term nuisance."* "Dampness of soil may presumably effect health in two ways. First, by the effect of water, *per se*, causing a cold soil, a misty air, and a tendency, in persons living on such a soil, to catarrhs and rheumatism; and second, by aiding the evolution of organic emanations. A moist soil is cold, and is generally believed to predispose to rheumatism, catarrh and neuralgia."† A sandy soil at a suitable elevation to ensure perfect drainage without an impervious layer of clay near the surface, will be a dry soil, and a clayey soil, on the contrary, a moist soil. Soils con-

* Hand-book of Hygiene, G. Wilson, M. D., 1878, p. 272.
† Practical Hygiene, E. A. Parkes, M. D., p. 306.

taining an excess of organic elements are injurious, for they tend to produce malarious diseases, so injurious to invalids.

Dry, sandy or gravelly soils, at a sufficient elevation to insure perfect drainage, will be, *caeteris paribus*, more healthy than a cold, clayey soil, or even a sandy soil, with water near the surface at a higher elevation. And before a physician advises a patient to visit a given winter resort, he should acquaint himself with the peculiarities of the locality as regards soil and moisture; for if a cold, moist soil is productive of disease, a locality where such soil exists cannot be favorable for the invalid, and should be avoided. Dr. Jones, of St. Paul, Minnesota, says that "those localities only should be recommended, where the soil is sandy, or highly pervious to water, and where rain-fall is rapidly absorbed." These conditions exist to a marked degree in a large portion of this State; hence its advantages as a climatic resort.

To establish the advantages of cold climates, and Minnesota in particular, in the treatment of consumption, Dr. Jones refers to the infrequency of this disease in Iceland, Nova Scotia, Norway and Sweden. At p. 289, he remarks: "The geographical location of Minnesota protects her from all oceanic influences. It need scarcely be repeated that this marine atmosphere is a fruitful source of mischief to consumptives, as *indicated by the death rate* of those persons residing in situations where this influence is operative. It is not surprising that Florida should suffer from this scourge, when we remember that it *is a peninsula*, and, therefore, exposed on two sides to this oceanic influence." But *mirabali dictu;* his whole plea for "cold climates" is based on the absence of phthisis in countries subjected to "oceanic influences." Iceland is surrounded on four sides by water. Nova Scotia is almost an island, and Norway and Sweden are more of a peninsula than Florida. If "oceanic influences" are so deleterious in this State, why not in those countries? In my opinion, the remarkable exemption from consumption in Florida is, to a great extent, to be attributed to the fact that it is nearly surrounded by water, and that it is nearly always subjected to "oceanic influences," as Iceland, Norway, Sweden and Nova Scotia.

Dr. Packard, surgeon to the Episcopal Hospital, Philadelphia, says: "We are told by meteorologists, that the sea air contains more ozone than inland places. It may be taken as a fact, that the presence of oxygen in this form is

one important element of the tonic and stimulating effect of the atmosphere of the sea-shore. Hence, we have at the sea-shore a *pure air*, containing oxygen in the form of ozone. Upon most persons the effect of breathing this air is tonic and invigorating, producing an immediate sense of exhilaration, improving the appetite, and promoting digestion." Pages 21, 22.

In opposition to the views of Dr. Jones, many leading physicians in England and on the continent send their patients to the sea-shore in summer and winter; and in the North, more especially in Philadelphia, leading physicians even send their patients to sea-side resorts in winter. Dr. Packard writes: "Children recovering from lung troubles, as bronchitis, whooping-cough, etc., are sent to Atlantic City or Cape May, in the latter part of winter. For many consumptives, as well as for those who labor under chronic bronchitis, the sea-shore affords a most valuable winter resort. The purity of the air, with the greater equability of temperature, enable them to breathe more easily, and it is sometimes surprising to note the diminution in the severity and frequency of the cough. A like beneficial effect is produced upon asthmatics, who, indeed, are very often subjects of chronic bronchitis."*

The water supply of a health resort may appear to be a trivial matter, but it is one of special importance to the invalid. Impure water has long been recognized as one of the most potent causes of disease, and it is only of late years that minute investigation has succeeded in demonstrating the great mortality which it inflicts on all classes of the community. In many localities in the South, the water is impregnated with vegetable matter, and should be avoided by the sick. In the older towns, more especially if the soil is sandy, and if sanitation has been neglected, the well water is apt to be contaminated with the drainage of water closets and kitchen slops, and, as a consequence, unfit for use, and productive of typhoid fever and intestinal derangements. In my numerous visits to the country districts of this State, I have frequently met with persons with enlarged abdomens, and waxy complexions, traceable, in almost every case, to the use of bad water and improper food. Whenever the residents of this State drink pure water and live on digestible and nourishing food, sickness and broken health will be found to be less than in any State east of the Rocky Mountains. As so many dangers lurk in apparently pure water,

*Sea Air and Sea Bathing, by J. H. Packard, Philadelphia, 1880.

invalids and strangers should, if possible, drink rain water whenever obtainable; and in selecting a hotel or boarding house at any winter resort, strict inquiry should be made with regard to the water supply, its source and quality. "The drainage and water supply," remarks Sparks, p. 245, "of a health resort, are scarcely, if at all, less important than its climatic conditions, because if people are to be poisoned by sewer gas, or poisonous sewage contamination, they had better stay at home."

Malaria is a subject which enters into the discussion of all Southern climes, and we unhesitatingly assert that Florida has been misrepresented in this respect. "It is the custom," remarks Dr. Lente, p. 21, "of many persons living at Florida resorts, off the St. Johns river, to represent for obvious reasons, that fever prevails there the year round, and that it is dangerous to resort to it at any time. In this manner they have excited senseless alarm in the minds of those proposing to come to Florida, and have diverted them to other Southern resorts, thus in the end injuring themselves as well as others." Unprincipled hotel keepers and runners, and the agents of steamboat and railroad lines leading to other localities, aid more or less in this fraudulent attempt to gain patronage. The bugbear, malaria, is, in my humble opinion, a prolific source of disease among visitors to Florida. By misrepresentations (to use a mild term) tourists and invalids have been led to believe that the entire water supply is productive of disease, and as a consequence, they refrain from drinking a sufficient quantity of water, or dilute it with poor whisky or brandy, to counteract its bad effects. Interested parties have expatiated so much with regard to the air being charged with malaria in winter, that invalids and patients become alarmed, and as a sequence they daily swallow quinine, and thereby produce nervous or functional derangements. They keep the pure air out of their rooms, breathe an air contaminated with their own breaths and exhalations, and at night assemble in halls and parlors and inhale vitiated air poisoned by their own breaths and the elements resulting from the combustion of coal gas and kerosene. They inhale for hours at a time, air charged with carbonic acid, and shun the pure night air as they would the emanations of the deadly Upas tree. Visitors act imprudently, and as a consequence, suffer from nervous derangements, colds, and diarrhœas, which they attribute to malaria or the climate. The cause of slight indispositions affecting visitors, is not malaria, but indulgence at table, change of drinking-water, eating excessive quantities of

fruit, or the inhalation of air poisoned by human breaths, or the resultants of the combustion of coal gas and kerosene, and a deficiency of the pure air that a beneficent Creator has placed everywhere within their reach. If visitors would let quinine and arsenical pills alone, control their appetites, eat moderately, inhale plenty of the salubrious air of the State, and not swelter in heated halls, parlors, and unventilated bed-rooms, we should hear less of the bugbear, malaria. At various times since 1844, I have navigated the larger streams of this State, visited the Everglades and Lake Okeechobee, and almost every bay inlet and river, from Cape Sable to the Suwannee River, and for over two months at a time, slept in an open boat, with nothing but a simple awning stretched over the boat's boom, and in no instance did my companions or self suffer from malaria or a chill. Before I became a resident of the State, my companions and self were unacclimated, and in no instance were we so foolish as to swallow quinine, arsenic, or alcoholic liquors as antidotes to malaria or chills. I speak from personal observation, experience and extended inquiry in various portions of the State, and I unhesitatingly assert that the opinion entertained with regard to the prevalence of malaria during the cold months in Florida, is unfounded. When discussing the advantages of Florida as a climatic resort, the eminent Dr. Forry predicted: "From a long residence in Florida, attached to the United States Army, that when the period of the red man's departure shall have passed, the climate of this land of flowers would acquire a celebrity as a winter residence not inferior to that of Italy, Madeira, or Southern France."*

"All know," remarks Dr. Brinton, p. 128, "how terribly arduous must be campaigning among the Everglades of Florida, yet the yearly mortality from disease of the regular army there, was only 26 per 1,000 men; the average of the army elsewhere was 35 per 1,000, while in Texas it rose to 40, and on the lower Mississippi to 45 per 1,000." If persons are suffering from malarial cachexia they may have chills at any season in any climate. But a few weeks since I was requested to visit a young lady visitor, whose home is Fifth Avenue, New York. The only time she had been dressed for three months, was the day she was driven to the Savannah steamer. Upon inqury, I found that quinine, arsenic, and Warbeck's tincture, had failed to cure her of chills. She arrived in this city in the latter part of Feb-

* Copeland's Dictionary of Medicine, vol. 1, p. 417.

ruary, and at the end of two weeks she departed for home, *sans* chills, *sans* malaria, *sans* debility. From my experience in hospitals and private practice in and near New York, I have no hesitation in stating that malarious diseases are more frequent there than in Florida. From my observations from Canada to the Gulf of Mexico, I am convinced that febrile diseases assume a milder form, and are more easily cured in Florida than in States to the north of it. I shall no doubt be met with the reply: "Look at the waxy complexions and gaunt forms of many Floridians, met with at some of the landings and depots." I admit the mild impeachment, and can attribute their cachectic condition to bad water, insufficient clothing, unsuitable and uncomfortable habitations, and the improper food they eat from childhood to the grave. In any other State but Florida, they would be the victims of enlarged spleens, cardiac dilatation, chronic gastritis, tuberculosis, dropsical effusions or albuminuria. But contrast the natives referred to with those who have comfortable homes, sufficient clothing, and who drink pure water and use good and nutritious food; or with Northern and Western people who have been in the State for years, and the latter will be found to be pictures of health. I admit that in Florida, as everywhere else, there are insalubrious localities, but they should be avoided by strangers. But to avoid them, interested parties should not listen to the senseless twaddle of irresponsible hotel keepers, hotel and steamboat and railroad runners, or strangers suffering from a severe attack of Aerophobia. A majority of the cases of illness occurring among visitors in this State, are referable to indulgence at table, drinking impure water, the inhalation of impure air, the American weakness of rushing hither and thither, occupation of unventilated rooms, and a ridiculous system of senseless drugging indulged in by strangers, as a consequence of the advice given by physicians who are ignorant of the climate and its diseases. To illustrate the frequency of malarious diseases—intermittent and other fevers during the cold months in this county, I have examined the records of the county hospital under my superintendence, and find that the following cases of malarious diseases were admitted for the five cold months of '79 and '80:

	November	December	January	February	March.
Remittent fever	1	0	0	0	0
Intermittent fever	1	0	0	0	0
Congestive fever	0	0	0	0	0
Typho Malarial fever	0	0	0	0	0

When we come to estimate the influence of climate on health, we should consider adjuvants outside of climatic factors. To insure success in the treatment of disease or broken health, something more is necessary than dryness of air and a moderate range of temperature. The locality selected should present various attractive features, so as to keep the patient from brooding over his infirmities. The invalid requires cheerful society, sources of amusement and occupation, an opportunity to walk, ride, drive, boat, fish, botanize and enjoy sunshine, and day by day, and hour by hour, find some source of divertisement.

The importance of pure air (uncontaminated with noxious effluvia and germs so common in interior sections), more especially that of the ocean, has not received the attention its importance demands.

Ozone is considered by many as an important constituent of the atmosphere, for by its "presence pure air may be inferred to exist." This allotropic condition of oxygen possesses a great power of destruction of organic matter floating in the atmosphere. Dr. Jones, of St. Paul, lays great stress upon the importance of ozone in the climatic cure of pulmonary diseases, and intimates that Minnesota is favored in this respect, as there is much more of this substance in the "higher than in the lower strata of the atmosphere," and that this is an argument against "sending patients to Florida." At another point he informs us that "the air of the sea and mountains is richer in ozone than the atmosphere of the plains." If Dr. Jones' statement is accepted as fact, Minnesota is not suited to consumptive patients, for it is not surrounded by the ocean, nor is that State favored with mountains. The Florida peninsula is surrounded by the sea, and as the land is almost constantly fanned by sea breezes containing a large amount of ozone, the "Land of Flowers" must of necessity be better adapted to the climatic treatment of pulmonary diseases than Minnesota. According to Sparks, p. 410, "it seems clear that the substance

giving the reaction of ozone is not deficient in marshy districts." According to the researches of Burdel, he found as "much ozone in the air of marshes as in other air." Clemens says: "There is a large proportion of oxygen near the surface of lakes, giving the reaction of ozone," more especially if there are certain acquatic plants present; and he also remarks that at some feet above the surface, the reaction is lost. Grallois has lately stated that he "found more ozone over marshes than anywhere else." Dr. Schreiber, of Vienna, asserts "that the turpentine exhaled from pine forests possesses, to a greater degree than all other substances, the property of converting the oxygen of the air into ozone." In this connection, Dr. Denison remarks: "If this be true, it will explain why a residence among the balsamic odors of the pines has long been esteemed of benefit to the pulmonary invalid." Florida is densely covered with pine forests, and if we accept the statement of Dr. Schreiber, Dr. Jones is in error. Dr. Moffat found the quantity of ozone in the atmosphere greater when the mean daily temperature was above the mean. According to the researches of Dr. Denison in Colorado, the excess of ozone appeared during the spring months on the plains, and came proportionately later in the season the higher up the observations were made." If we accept as correct the statements of the authorities quoted, and Florida is amply supplied with ozone, and if according to the statement of Dr. Jones, "ozone is exceedingly valuable in the climatic treatment of phthisis," patients should be sent to Florida in winter, and to elevated and mountainous regions during the summer.

"Food, the kind, quality, and the manner of its preparation, is a matter of no small importance to the invalid, and no climate, however suitable in other respects, is proper for him, if he cannot obtain good and decently cooked food."—Lente, p. 43 In phthisis, food is a matter of more importance than medicine, and this subject is sensibly referred to by Dr. Bennet. "The food taken by consumptives should be of the most nourishing kind, well cooked and abundant in quantity. Indeed, the quantity of food taken by consumptives should only be limited by their digestive powers. In my opinion the principal value of medical treatment in phthisis is the restoration of digestive tone, when impaired or absent. If patients can be brought to eat, to digest and to assimilate, they have a chance of recovery. If they cannot, their chance is indeed slight." One great objection to many portions of the South, as winter resorts for invalids, is Southern cooking, which, in some localities, is character-

ized by the use of excessive quantities of grease and the ever-present corn bread and bacon. But in the cities, towns, and the better class of winter resorts, the cuisine is all that can be desired. In some hotels, the tables cannot be excelled by those of the North.

The character of the buildings at a health resort has much to do with the successful treatment of disease, and this subject does not receive due and proper consideration. In some portions of the South the buildings are poorly constructed, and in some instances unsuited to the requirements of the invalid. The invalid should select a well constructed building, sufficiently elevated above the surface of the soil, where the soil is dry, and permanent water is at considerable depth below the surface.

Considering climatic factors, as a result of experience, observation, investigation and study, we are convinced that Florida presents more attractions and advantages as a winter resort for invalids than any State in the Union. The temperature is favorable, the mean relative humidity is peculiarly adapted to the treatment of all forms of pulmonary disease, the air is salubrious, and in a large portion of the State dry and bracing; atmospheric changes are infrequent, and not so great as in other sections east of the Rocky Mountains. Rains are infrequent, and sunshine and fine weather the rule. The State possesses insular, interior, dry and moist localities, semi-tropical and cooler sections; and if the nature of any given case should necessitate a change of base, a suitable climate can be reached in a few hours and at a trifling expense.

For fear of being accused of painting Florida in too bright colors, we shall use the language of others:

"The atmosphere is generally dry and clear, owing to the evenness and salubrity of its climate. Florida has long been a popular resort for invalids, and especially those afflicted with pulmonary complaints. Of the total deaths from all causes in Florida in 1870, as reported by the Federal census, only 131 were from consumption. There were 17.3 deaths from all causes to one of consumption. The advantages of the climate in this respect are further shown by a comparison of the statistics relating to consumption as reported by the census of 1870, from which it appears that the ratio of deaths from consumption to those from all causes, was less in Florida than in any State except Nevada; and this advantage becomes still greater when it is considered that, Florida being a popular resort for consumptives, *a large proportion of those who die there from that cause*

came with the disease from other States."* It must be remembered that the first immigrants to a new State like Nevada, are, as a rule, robust and possess good constitutions; and we must wait for a few decades before we can arrive at a correct conclusion with regard to the prevalence of phthisis. My observations, extending over three years in our county hospital, justifies me in stating that a very large proportion of the cases of phthisis admitted into the institution were the result of constitutional syphilis, and not attributable to climate.

Dr. Charles A. Lee, the learned editor of Copeland's Medical Dictionary, remarks: "Proceeding south from Canada to Florida, the seasons become more uniform in proportion as their annual temperature increases, and they glide imperceptibly into each other, exhibiting no great extremes. Compared with the other regions of the United States, the peninsula of Florida has a climate wholly peculiar. The climate is so *exceedingly mild and uniform*, that besides the vegetable productions of the Northern States generally, many of a tropical character are produced. We have already spoken of the mildness of the climate of this region; it appears to possess an insular temperature not less equable and salubrious in winter than that afforded by the South of Europe, and is, therefore, well adapted to those forms of pulmonary disease, as bronchitis and incipient phthisis, as are benefited by a mild climate. *Mildness and uniformity* are the two distinguishing characteristics of the Florida peninsula. If we compare the climate of East Florida with the most favored situations on the Continent of Europe, and the islands held in the highest estimation for mildness and equability of temperature, in regard to the mean temperature of winter and summer, that of the warmest and coldest months, and that of successive seasons, we shall find the results generally in favor of the former." After citing the mean difference of successive months and annual range of a number of climatic resorts in comparison with stations in Florida, he remarks: "Thus it is easily demonstrated, that invalids requiring a mild winter residence, have gone to foreign lands in search of what might be found at home—an evergreen land, in which wild flowers never cease to unfold their petals."†

In discussing the most suitable climates for invalids, Dr. Wilson, late Medical Inspector of Camps and Hospitals,

* American Encylcopedia, vol. vii, p. 281.

† Copeland's Medical Dictionary, vol. 1, pp. 402, 404, 416.

United States Army, remarks: "Neither upon the southern coast of France, nor anywhere under the bright Italian skies, can a winter climate be found so equable and so genial to the delicate nerves of most invalids as can be enjoyed in our sanitary stations in Florida."*

Dr. H. A. Johnson, of Chicago, states: "I had about fifty patients last winter in Florida and Georgia, and they came back better. Even in those in whose lungs cavities existed, were better than they would have been had they stayed in Illinois. I will, therefore, advise patients in the latter stages to go to Florida."†

At page 1235, vol. 3, of Copeland's Dictionary of Medicine, we find the following: "Dr. Forry and other writers of authority, recommend a change of climate in this disease, as a remedial agent of great efficacy, and especiully the peninsula of Florida."

Over half a century ago, Captain Vignoles, an intelligent gentleman, traversed a large portion of Florida, and wrote: "That the climate is good for patients of a consumptive habit is notorious, several persons during the last winter and spring from Carolina and elsewhere having recovered their health; and that the air is not at any season hurtful is equally well known. The fashion of sending invalids on an expensive journey to the south of France and Italy, may be superseded, if physicians could be induced to recommend a winter in Florida to their patients. The attention of the faculty is seriously entreated by the author to this subject, and to the propriety of ordering their debilitated patients to try the salubrious air of Florida."‡

Florida is not esteemed by all as a climatic resort for invalids, and I shall quote from Dr. Jones' Essay, pp. 277, 278. He says: "Florida, which has been vaunted as a sanitarium for invalids, shows a greater ratio of mortality from phthisis, to-day, than Minnesota. Florida is, perhaps, to-day, more frequented by invalids than any of our Southern places of resort. The exceeding fatality of consumption to families who for generations have resided in the State, as well as the unfavorable effects, as a rule, observed upon patients who visit that State in declining health, is well known. We are not surprised that such is the case, after

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* Health and Health Resorts, J. Wilson, M. D., Philadelphia, 1880, p. 26.

† Trans. Am. Med. Congress, pp. 422-3.

‡ Observations on the Floridas, by Charles Vignoles, New York, 1823, p. 111.

having carefully analyzed the climate, for there is little that can be said in its favor, and a great deal which must be said against it."

In making such a sweeping statement, in which the welfare and progress of a State is involved, it would have been but just and professional for the writer to have furnished references to authors, resident physicians, or statistical evidence to substantiate his assertions. But his unauthorized statements is evidence of the assumptions of ignorance in a person who is disposed to injure a State, of which he has no personal knowledge, no reports from resident physicians, or no reliable data upon which to base an opinion.

In this State we have no State Board of Health, and no compulsory registration of deaths, and it was impossible for Dr. Jones to base his statements upon any evidence but the United States Census, and the Army Reports, and mortuary returns of this city, and these are favorable to the State. If Dr. Jones had been impartial and disposed to adopt a professional course, he would have written: "Florida is a favorite resort for invalids. Many persons visit the State in the last and incurable stage of phthisis and die there, as everywhere else; and as we have no mortuary tables, or the means of ascertaining how many residents or invalids annually die in that State of phthisis, we are not justified in expressing a positive opinion." But such a professional statement would not have aided the gentleman in accomplishing his end.

In his essay, Dr. Jones refers to the great mortality in the city of Jacksonville, and as reliable data are important, I addressed Dr. Knight, Health Officer of the city, and received the following reply:

"Residents who died during years of 1878 and 1879, from phthisis, 11. Percentage of deaths by phthisis to total mortality, 0.55."

Dr. Jones asserts that the mortality from phthisis is great in families that have lived in Florida for generations. The writer did not institute a personal investigation, or correspond with our leading physicians, and as no State mortuary reports have been published, the question arises, "From what source did Dr. Jones obtain his information?" A statement of this kind requires side evidence in the way of statistics, mortuary reports, or reliable information—not mere assertion, based on preconceived opinions. My observations and inquiries led me to the opposite conclusion, but being loth to express a positive opinion in opposition to that of an eminent member of the profession, I addressed a circu-

lar letter to leading physicians in various portions of this State, and shall give a few queries propounded and the answers received.

QUERY.—How long have you practiced medicine in this State?

ANSWERS.—Twenty-eight years. Twenty-two years. Twenty-three years. Twenty-four years. Twenty-five years. Twelve years. Seven years. Thirty years. Thirty-six years. Twenty-eight years. Twenty-one years. Thirty years. Twenty-one years. Forty-two years. Five years. Forty-nine years. Thirty years.

QUERY.—Have you noticed any tendency to the hereditary transmission of phthisis in families that have resided for generations in this State?

ANSWERS.—None. None of a marked character. Hardly an instance; so seldom as to make it an exception. No. No. None. In one family for three generations members died of phthisis; the present members of the family are quite healthy, and I am convinced the hereditary tendency is removed. In one instance only. Not more so than in other States. I have no recollection of any case. Seldom developed, and when it occurs, milder and more favorable than in Northern and Western States. In some rare instances. Not more so than in other families. Hereditary taint dies out. Know families here born of consumptive parents, who have passed the meridian of life and exhibit no signs of pulmonary disease.

In the *ipse dixit* of Dr. Jones, we have the opinion of a theorist who studied the climatology of this State, and the hereditary transmission of phthisis in our old families, in his cosy sanctum in St. Paul. And, in opposition to his assertion, we have the positive statements of educated, experienced and reliable medical gentlemen—gentlemen who are competent to form intelligent and unbiased opinions, and whose aggregate experience in the profession covers 433 years, or an average of over 25 years.

To determine the question of transmissibility of phthisis in this State, in families predisposed to this disease, I propounded the following queries:

QUERY.—Do you know any persons who are residents of this State, who came here suffering from phthisis, and who have had children since they became residents?

ANSWERS.—Yes. I do. Yes, more than a dozen. Several. Several. Yes. Yes. Yes. I do. Yes. A number. Yes. Yes. Quite a number. There are many to my knowledge. Yes.

QUERY.—Have you noticed any disposition among children of such parents to manifest any hereditary tendency to phthisis?

ANSWERS.—No, I have not. Not in any case. No. None. None. No. No. No. I have not; their children are as healthy as any I have seen in any part of this country. In two instances only. No; children of such persons are healthy. No. Have noticed no such tendency in such children. No. Very infrequent. None.

Dr. Jones refers to the "unfavorable effects, as a rule, observed upon patients who visit Florida in declining health." As his essay is devoted to the consideration of climatic treatment of phthisis, we must conclude that by "declining health" he means phthisis. If the opinion of Dr. J. is correct, it is surprising that thousands of persons visit Florida each winter for their health, and that the number increases annually. In my visits to various portions of the State, I have met numbers who have settled here as invalids, who have been cured by the climate, or who are in the enjoyment of fair health. Like Dr. Jones, I have "carefully analyzed the climate," but am not disposed to hazard a positive opinion; hence I shall quote queries from my circular letter, and give the replies received.

QUERY.—Is tubercular consumption as liable to be developed here as in the northern and northwestern portion of the United States, in persons predisposed to the disease?

ANSWERS.—No, sir. No. It is not. From my experience North and South, I unhesitatingly say no. No. No. I think not. I have not seen an instance in which it was developed in a person predisposed to it. It is not. No. There are very few cases developed in this climate. It is a rare thing for phthisis to be developed in this State in the predisposed. No. Such has not been my experience. It certainly is not. No, it rarely occurs. No.

QUERY.—Does the climate of Florida favor the cure of phthisis developed elsewhere?

ANSWERS.—Most certainly. It certainly does, and especially in those whose lungs are softened and tubercles and cavities exist. It does, as I know from observation. In my opinion, decidedly yes. In most cases. If persons avail themselves of the climate sufficiently early. Yes. It does. Yes. I have known many cases cured by coming to this climate. It does; I have known many cases cured, and others relieved and life prolonged to old age. I have known many cases cured by coming to this climate. Yes. I am sure it certainly does. It does; I have known many

cases. Yes, advanced cases are often cured by this climate. It does.

QUERY.—Do you know persons now living in this State, or elsewhere, who came here suffering from phthisis, either incipient or developed, who have been benefited by a residence here?

ANSWERS.—Yes, many of them. I do. A great number. Quite a number whom I can name. Several. Yes. Yes. Yes. I do. I have seen many benefited during my residence here, and I know of quite a number now living here, who have been cured by a residence in this State. Yes. Several instances (names and residences given). Numbers of cases. I have known many persons who have been restored to health, and many whose health has been improved. I know many such. Yes, I can mention many. Several.

QUERY.—Do you consider the climate of this State favorable to the treatment and cure of pulmonary diseases?

ANSWERS.—In my opinion, it is the finest climate in the world for tubercular diseases. I have seen so many benefited, that I would recommend it in almost every case. I do above any other that can be found on the American continent. Decidedly. I do. More so than in any State in which I have lived. Yes. All are not benefited; many certainly will be. I certainly do. I consider it the most favorable climate on this globe for the relief and cure of phthisis. Superior to any in the United States. Yes, most positively. Yes. Most certainly; I have known numerous cases fully restored here and have returned North and remained well. I do. I do, decidedly. I do.

In his essay, Dr. Jones informs us that he has "carefully analyzed the climate [of Florida], and little can be said in its favor, and a great deal must be said against it." As Captain Cuttle would say, "Here's whisdom for you, intense whisdom." The inquirer after truth has a right to require that scientific doctrines which he is asked and expected to receive as true, should be supported by observation, facts, experience, or statistics—not by assertions and statements of writers who are ignorant of the climatic conditions of a locality they are condemning.

All Dr. Jones' conclusions appear to be based on the following sentence: "Hygrometric measurements show that the *atmosphere of Florida is loaded with moisture.*" But the Doctor carefully avoids the publication of any data or tables regarding the mean relative humidity of Florida. We have placed before you reliable meteorological data, which we

think will establish the fact that Florida possesses a dry climate, and that Dr. Jones' statement is unfounded and calculated to mislead. It is not the misrepresentation of a State alone which is censurable. If Dr. Jones' statements are incorrect, numerous invalids may be misled and injured, and in our opinion, this is an important consideration. When life and health are at stake, writers should not hazard statements upon mere conjecture or popular opinion.

One of the most amusing assertions of Dr. Jones, in condemnation of Florida, is the following: "In Florida everything unites to repose; an irresistible feeling of languor seizes a person; one's energies are paralyzed, and exercise consequently neglected." It is evident that the Doctor never visited this State, or he would not have hazarded such a statement. I am forced to entertain views opposite to those of Dr. Jones, but as I am too modest to express a positive opinion based on my own feelings and experience, I propounded the following query in my circular letter:

QUERY.—Do you consider the climate of this State, from October to May, bracing and invigorating, or enervating and depressing?

ANSWERS.—Bracing. Bracing and invigorating. Bracing and invigorating. Dry and stimulating. Bracing. Bracing and invigorating. Bracing and invigorating. Invigorating and bracing. Bracing and not relaxing and depressing. Bracing and invigorating. Invigorating and bracing. Bracing, invigorating and delightful. From November to May this climate exerts a tonic influence on invalids. Climate from October to May, quite invigorating. Decidedly bracing and invigorating. Bracing. Bracing and invigorating.

I have given you the views of a climatic theorist, and the positively expressed opinions of the leading physicians of this State, and I need but remark that if the latter are believed, Dr. Jones has made erroneous statements, which are calculated to mislead and injure invalids, by diverting them from a *temperate, dry and bracing climate* to a locality where the "Ice King is"—where atmospheric changes are great, and where the mean relative humidity during the winter months is greater than that of Florida.

Dr. Jones informs us, in his "plea for cold climates" (and Minnesota in particular), "in the treatment of pulmonary consumption," that "to ascertain the opinion of the profession of this State [Minnesota] concerning the effects of climate upon phthisis, the Minnesota State Board of Health

recently sent out a circular, and received the following replies." Among the inquiries was the following :

Question VII. "What months are most favorable for immigration here?"

"Forty answers. Autumn, eight ; summer, twelve ; spring, five ; late spring and early fall, ten ; any month, two ; undecided, three."

It is remarkable that none recommended the winter months, more especially, as the object of the circular was to prove that Minnesota is, *par excellence*, the most suitable winter resort for invalids ; and more especially as Dr. Jones has asserted its superiority.

Desirous of ascertaining the views of our leading physicians, I included the following inquiry in my circular letter ;

QUERY —What months are the most favorable to immigration to this State ?

ANSWERS.—All seasons. Fall and winter months. Winter months. October 1st to April 1st. September to March. October to May. Whenever one gets ready. Winter months. Fall and winter months. October. Fall and winter. Fall and winter months. October to April. Winter months. All seasons are equally favorable for invalids. October to June. Fall and winter months. Fall and winter months.

At page 296, Dr. Jones asserts "that it is difficult to understand the reason why the profession in this country still persists in sending their patients to Florida. That improvement should take place is against reason and experience alike. If we except a sandy soil, it does not possess a single element which is now regarded as favorable for the palliation or cure of phthisis." In Dr. Jones, we have a dogmatist, who writes about "reason and experience." His reasons are simply based on ignorance ; the assertion that "the atmosphere of the State is loaded with moisture," and "meteorological tables for the year 1878, for the city of St. Paul." He arrogantly censures the profession for sending their patients to Florida. This can be accounted for on the ground that many members of the profession are posted with regard to the climatic advantages of Florida, and that Dr. Jones is a resident of Minnesota. He speaks of "experience," of which he has not had jot or tittle. If he had resided in this State for but twelve months, he might have referred to his limited "experience ;" but when a non-resident refers to "experience," it is simply descending from the sublime to the ridiculous. He asserts that with the exception of a "sandy soil the State does not possess a single element which is now regarded as favorable for the

palliation and cure of phthisis." I have quoted from leading authorities regarding the climatic factors "necessary for the alleviation and cure of phthisis," and have discussed the factors of this climate, and have given meteorological data, and, in my opinion, there is but one conclusion to be arrived at, and that is that Dr. J. is a dogmatist, and one who is ready to assert as fact what he cannot establish by experience, testimony or reliable data.

In his essay, Dr. Jones uses the following language: "The mortality of St. Paul is less than that of Jacksonville." Questioning the correctness of this statement, I addressed a note to Dr. Jones, requesting him to favor me with the mortuary reports of St. Paul for the years 1878 and '79, with his authority for the statement regarding the mortality of Jacksonville, and that the atmosphere of Florida is "loaded with moisture." But received no reply.*

To condemn localities of low elevation, as well as those

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* Since this paper was placed in the hands of the Publication Committee, I have received a communication from Dr. Jones, dated June 21st, in which he states:

"The mortality of Jacksonville, Florida, was found in some medical journal, or in the transactions of your State Medical Society. I cannot now remember which. I do remember, however, that the mortality from consumption in Jacksonville was greater than in St. Paul. I am well aware how *unreliable such information is.* The humidity of the atmosphere of Florida is so well understood, that to answer you as to where I received the information, it will only be necessary to point you to any work on climatology which has been written in this country. I doubt if you can overcome such overwhelming testimony on this point."

When authority for some of his statements is requested, the Doctor's memory is at fault, but as regards the mortality of Jacksonville, his memory is perfect. We feel justified in stating that the mortuary reports of the city of Jacksonville have not been published in any medical journal, or the transactions of the Florida Medical Association. If such "information is so unreliable," it is somewhat surprising that a medical gentleman should have hazarded a positive and denunciatory statement upon such "*unreliable information.*"

As the authority for the mean relative humidity of this State is "so well understood," and as it can be found in "any work on climatology," it is surprising that Dr. Jones did not refer to some particular work, or quote one in his essay. The popular opinion that Florida possesses a "moist climate," is based on the fact that it is partially surrounded by water—or on a mere rehash of the statement which appeared in the earlier editions of the work of Dr Napheys, previously referred to. The statement that the "atmosphere of Florida is loaded with moisture," is about as reliable as the statement that the "air of Minnesota is dry and desiccating." It is more easy for authors to quote and perpetuate errors, than to appeal to the Signal Service Department at Washington and secure reliable data.

situated near the sea coast, and to bolster up high altitudes, Dr. Jones quotes the following from Thoroughgood: "At Marseilles, the mortality from consumption is 25 per cent." Probably Marseilles is one of the most unhealthy towns on the Mediterranean, yet that recent and eminent authority, Dr. Sparks, informs us that the mortality from phthisis in that city is but 1 in 7.4. That in 1876, the garrison in Marseilles numbered 3,943 men; that the mortality was 20 per 1,000, and but three died of phthisis. These figures do not support the authority quoted by Dr. Jones.

Mentone is situated on the Mediterranean, at a very low elevation, and is recommended by leading authorities as a climatic resort. Its climate, during the cold months, closely resembles that of Florida. During a period of twenty-five years, we find that 3,189 cases of all kinds were admitted into the hospital, and during that period only forty-five cases of phthisis—the ratio of phthisis to other diseases was as 1 to 75.5. To illustrate the influence of a temperate, bracing and dry climate in the treatment of phthisis, I shall quote from Sparks, p. 113:

CASES OF PHTHISIS TREATED ON THE RIVIERA.

		Number pr. ct.
Cured or improved	1,208	62.6
Stationary or worse	437	23.6
Dead	284	14.8
Number of patients	1,929	

Dr. Jones states, p. 280, that "late investigation seems to indicate that the comparative infrequency of phthisis among inhabitants residing in elevated regions, is due not so much to mere altitude as to the absence of organic matter in the atmosphere of these high elevations. It is now established beyond all doubt, that organic substances, whether gaseous products of putrefactive processes, microscopic germs floating in the atmosphere, when they reach the bronchial tubes in the inspired air, are capable of exerting morbid processes which lead to serious results. These deleterious organic substances, which are constantly inhaled in the lower strata of the atmosphere, are one of the strongest arguments against sending patients to Florida." The question naturally arises, has Dr. Jones, or any other competent observer, examined the air of Florida microscopically? We have not been favored with a visit from Ehrenburg, Tyndall, or Angus Smith, and Dr. Jones, without any authority or reason, condemns the atmosphere of this State, and endeavors to injure

Florida as a climatic resort, and as a place of permanent residence. Correctly speaking (as regards the surface of the earth), the atmosphere which surrounds St. Paul is no higher than that of Jacksonville, but the greater number of inhabitants and cesspools in the former, may cause more impurity of air than in the latter. If St. Paul was situated on an eminence 2,000 to 6,000 feet above the level of the adjoining country, Dr. Jones' organism theory would have a slight basis. According to the investigations of Ehrenburg and Sylvestrie, sand, earth and microscopic organic forms can be transported in the atmosphere for long distances. The air of Berlin has been found to contain organisms derived from the African desert. Independent of larger substances, the air is found to contain numerous living creatures, some lifted from the ground by winds, others growing in the air. Ehrenburg discovered over 200 forms. These can be dried, and retain their vitality for years. Minnesota is surrounded by other States where organisms do exist, and it requires but a few hours or days for the winds to carry objectionable substances from Illinois, Michigan, New York, Louisiana, or Florida to Minnesota. If Dr. Jones' theory regarding foreign substances in the air is correct, Florida is a more suitable place as a climatic resort than Minnesota. It is admitted by all scientists that foreign substances and minute organisms "are more abundant in land than sea air;" in fact, sea air is noted for its purity. Minnesota is surrounded by other States, and is favored by the winds with their impurities. Florida is nearly surrounded by the ocean, and as it is generally fanned by sea breezes, the air must be comparatively pure, and Dr. Jones' statement is untenable.*

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*At p. 283, Dr. Jones asks the question: "Why is consumption so frequent in Florida?" At p. 289 he answers it, by stating: "It need scarcely be repeated, that this marine atmosphere is a fruitful source of mischief to consumptives, as indicated by the large death rate to those persons residing in situations where this influence is operative. It is not surprising that Florida should suffer from this scourge, when we remember that it is a peninsula, and therefore exposed on two sides to this oceanic influence." Florida does suffer from a scourge, but it is not phthisis—it suffers from adverse and unreliable statements of writers.

To establish his theory, he asserts, at p. 274, that "consumption is unknown in Iceland," and that "Sweden and Norway are almost exempt from this disease." He also cites Nova Scotia to prove his position. Iceland is surrounded on four sides by water. Sweden and Norway form a peninsula; Nova Scotia is a peninsula, and more nearly surrounded by water than Florida. The writer must possess

The entire gist of Dr. Jones' paper, is to prove that tropical climates are productive of phthisis; that they are unsuitable for the treatment of phthisis. "That the warm, moist climate of Florida acts as an internal poultice, softening the morbid mass" [tubercles], and thereby hastening the fatal end. "That the effects of a hot, humid atmosphere upon the skin, is either to entirely suppress cutaneous perspiration, or to reduce it to a minimum. Indisposition to exertion, either physical or mental, due in part to humidity, suppression of the insensible perspiration, and to heat, is a serious drawback to a patient's improvement. A certain amount of exercise in the open air is the *sine qua non* to the successful treatment of a patient with phthisis. Florida would be unfit for a patient to visit, for this reason if for no other." Dr. Jones' object is apparently to lead the public to believe that Florida is a "hot" and "humid" climate. But we have proven that the mean relative humidity of Florida for the entire year is but 1.7 per cent. above that of Minnesota; and during the cold months, it is 1.8 per cent. lower.

The statements of Dr. Jones will lead his readers to believe that Florida is always "hot," and that the sun is always vertical; but for the five cold months the mean temperature for this city is but 58.7—a close approach to the ideal climate recommended by standard authorities for the climatic treatment of patients during the winter months.*

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a bad memory, and forget what he stated on p. 274, or else his geographical knowledge is defective. His geographical description of Florida establishes the fact that he is geographically ignorant of the State he denounces. He asserts that Florida is a peninsula. It possesses a peninsular, and a non-peninsular portion, and the latter is 300 miles long.

* Dr. Jones asserts that Florida is "hot," and by this expression his readers are led to believe that Minnesota is cool during the summer months. To illustrate the meteorology of St. Paul, he introduces tables for the year 1878, and, for purposes of comparison, we shall use data for the same year.

Maximum temperature for the hot months for year 1878:

	June.	July.	August.	Sept.	Mean.	
St. Paul, Minn.	87°	96°	94 °	94°	92.7°	
Punta Rassa, Fla.	92	91	92	90	90.1	93.°
Key West, Fla.	94	93	94	92	93.2	
Jacksonville, Fla.	96	97	98.5	92	95.9	

From these data it will be seen that the mean of maximum tem-

In this connection, I cannot refrain from quoting the statement of the eminent Prof. Reuhle, of Bonn: "The investigations of Heirsh, have shown that neither the geographical position, nor the temperature of a region have anything to do with the prevalence of consumption. There are regions in all zones which are free from this disease, and, on the other hand, there is no zone in which it is not very prevalent. While it is very rare in Iceland, in the island of Marstrand, on the steppes of Kerghis, in the interior of Egypt, on the Plateaus of Mexico, Costa Rica, in Peru, and in the interior of South Africa, it is, on the other hand, very ocmmon in Sweden, as well as in India and Siberia, as well as in Australia and South America." Referring to the causes, a moist atmosphere, currents of air, and certain winds, he remarks: "Nothing is known regarding *modus operandi* of these causes, except that they produce catarrhal and inflammatory respiratory diseases, which may become the starting point of consumption, and that they are apt to induce a rapid increase when this affection already exists." I have quoted from the paper of Dr. Jones, and the views of an eminent Professor—a man who was considered worthy to be appointed the successor of Prof. Neumayer.

At page 297, Dr. Jones states: "That it is during the first stage of consumption that invalids derive so much benefit from a visit to Minnesota. I cannot insist too strongly upon the inutility of sending phthisical patients to this State who are in the advanced stages of the disease. It is my belief that when the stage of ulceration and excavation has been reached, this climate will do harm."

Here we have the authority of a distinguished resident of Minnesota, that the climate of that State is injurious after softening has commenced, and as he condemns Southern California, Colorado, Florida, and Mediterranean climatic resorts, there is nothing left for a patient, after tubercles have commenced softening, but to give up all hope and "set his house in order." We opine, that if Dr. Jones would *visit Florida*, and inhale our "dry, bracing and invigorating

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peratures for Punta Rassa, for year 1878, was 2.6 deg. below St. Paul, and that the mean of three stations in this State exceeded that of St. Paul by *three-tenths of one degree*. But he neglects to inform his readers that the nights in Florida are cooler and more invigorating than in the North and West, and that the days are longer in the North than in Florida, and that the rays of the sun in the North are longer concentrated on the earth's surface, with a proportionately shorter night for cooling by radiation.

air," and question some of our oldest and most experienced physicians, he would advise invalids to visit Florida in preference to Minnesota.

I must apologize for occupying so much of your time with the assertions of Dr. Jones. But if his views of Florida are correct, they should have world-wide publicity, for thereby thousands of invalids will be benefited. If his statements are incorrect, common humanity and justice to this State, demand that they should be exposed, as they are calculated to mislead those who are suffering from a disease which annually destroys a large portion of the human family. My remarks are not intended to injure Minnesota, but to correct the statements of Dr. Jones, published in a Medical Journal, and reprinted in pamphlet form for general distribution. His statements have been widely circulated, and if erroneous, they should be contradicted.*

Other localities in this State may present greater climatic advantages and attractions than Jacksonville as a winter resort; yet, as it is the metropolis and objective and distributing point of the State, and as definite and reliable data can be obtained regarding its meteorology, diseases and mortality, I shall offer no apoloy for making a special reference to it.

It possesses a large number of hotels, many of them in appointments, home comforts, and cuisine equal those of Northern cities. The boarding-houses are numerous and comfortable, and in some, the tables are supplied with every necessary and luxury. Some benevolent ladies have erected a large and well arranged brick hospital, where invalids can obtain the comforts of a home on reasonable terms. The river St. Johns affords every facility for rowing and sailing, and daily steamboat excursions are made in various directions. Through the medium of steamships, steamboats and railroads, any portion of the State can be cheaply and comfortably reached. Owing to the location of this city (a few miles from the ocean), the easterly winds have to pass over the land and are robbed of their saline particles, harshness and stimulating effects upon the irritable mucous membranes of the air passages. Sources of amusement are numerous, and the invalid can find means of diverting his

* I opened a correspondence with Dr. Jones, and in my last communication, mailed several weeks since, I enclosed reliable and official tables illustrating the mean relative humidity of Minnesota and Florida, and pointedly asked the gentleman if he had not "misrepresented the climate of Florida with regard to humidity." Up to to-day (Aug. 27th), I have not been favored with a reply.

attention from his ailments. The mean relative humidity of any winter resort is an important factor, and with regard to atmospheric humidity, this city has been grossly misrepresented.

To correct prevailing errors, which have been industriously propagated by ignorant or interested parties, we shall present the following report, kindly furnished by J. W. Smith, the intelligent observer in charge of the Signal Station in this city:

MEAN RELATIVE HUMIDITY OF JACKSONVILLE, FLORIDA.

Years.	November.	December.	January.	February.	March.	Mean for 5 months.	Annual mean	
	per ct.	per ct.	per ct.	per ct.	per ct.	per ct.	year.	pr ct.
1875, '76.....	78.9	71.1	67.8	70.4	60.2	69.7	1875	70.3
1876, '77.....	68.2	64.5	73.6	69.0	68.5	67.8	1876	67.2
1877, '78.....	71.8	70.0	67.8	68.5	66.4	68.9	1877	69.3
1878, '79.....	70.0	66.3	65.0	65.0	66.0	66.5	1878	68.7
1879, '80.....	70.5	74.6	77.1	69.4	63.7	71.1	1879	69.7
Mean for 5 years.....	71.9	69.3	70.3	68.4	63.9	68.8		69.0

Thus, you will perceive that Jacksonville possesses a lower mean relative humidity than most of the celebrated winter resorts. There is one important point to which I wish to direct your attention, and that is the remarkably low percentage of humidity during the much dreaded month of March—the mean for five years being but 63.9, as against 73.3 at Mentone, 76.8 at Atlantic City, 79.5 at Breckenridge, Minn., 68.4 at Nassau, N. P., and 67.1 at St. Paul. When referring to the effects of change of climate, Dr. Madden remarks: "The temperature of a locality, to which so much importance is popularly assigned, is no criterion of its climate as a health resort, the fact being, that invalids are painfully sensible of variations in the *hygrometric state of the atmosphere*, which are in no way indicated by the thermometer, so much relied on."

The thermometric range in this city is not too high nor too low. As evidence of this, we find the mean temperature for the five cold months, for five years, to be, for November, 62.1 deg.; December, 55.8 deg.; January, 56.2 deg.; February, 56.9 deg.; March, 62.7 deg.; mean for five months, 58.7 deg.

Dr. Lente, p. 17, when discussing temperature as a constituent of climate, and referring to certain winter resorts north of Florida, remarks: "A mean winter temperature of about 48 deg. is too low to *entice* many of the feeble invalids out of doors, except in calm and sunshiny weather. But in some of them, this degree of cold is enhanced, as far as the sensations are concerned, by the winds, which frequently prevail. At such times, most invalids will, therefore, be found hovering over the comfortable wood fires, and will be pretty sure to keep all the apertures of their chambers closed at night, thus depriving themselves, during by far the greater part of the twenty-four hours, of the principal means of cure. In Florida, the sun shines so brightly, the air is so balmy, the songs of the birds so enlivening, and the orange trees in their bloom, or laden with their golden fruit, lend such a charm to the outlook from the windows, that the most indolent or the most cold-blooded invalid feels little inclined to stay indoors."

Prof. J. Hughes Bennett, of the University of Edinburgh, remarks: "And when, in our own country, the question arises: Where shall we send the consumptive patient in order to avoid our changeable climate and cold winter winds in winter? we naturally say: To a land where, during that portion of the year, the weather is warm and equable. Much has been written on climate, but the one which appears to me best, is that which will enable the phthisical patient to pass a few hours every day in the open air, without exposure to cold or the vicissitudes of temperature on the one hand, or excessive heat on the other.*"

With the exception of the month of December, fogs are seldom seen, and when they do occur, they are not dense, and disappear as soon as the sun appears above the horizon. Interested parties have intimated that the city of Jacksonville is a "rainy locality," and, in consequence, an "unsuitable place for invalids." To correct this error, we will furnish data applicable to a few winter resorts, from reliable sources:

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* Bennett's Practice of Medicine, pp. 326, 476.

RAIN-FALL IN INCHES AND HUNDREDTHS.

	Number of years.	November.	December.	January.	February.	March.	Five months.
Nice	28	5.11	4.12	3.06	1.68	2.89	16.86
Mentone	9	5.34	3.15	1.70	2.18	4.13	16.50
Nervi	7	6.00	4.88	4.78	23.3	4.49	23.40
Genoa	29	7.61	4.86	4.39	4.27	3.59	24.72
Atlantic City, N. J	5	4.61	3.60	2.76	2.10	3.86	16.93
Augusta, Ga	5	4.56	3.09	3.70	3.64	5.65	20.64
Jacksonville, Fla	5	3.02	3.38	2.34	5.14	2.84	16.62
Key West, Fla	5	2.43	1.33	2.18	2.22	0.94	9.10
Punta Rassa, Fla	5	2.38	0.99	1.69	2.67	1.04	8.77

We have referred to sunshine as an important aid in the treatment of disease and broken health, and as an evidence that Florida is favored with sunshine and fair weather, and not "cloudy, foggy and rainy weather," as interested parties have asserted, I shall direct your attention to the following meteorological data, furnished by J. W. Smith, the Observer in charge of this station :

METEOROLOGICAL DATA FROM SIGNAL OFFICE U. S. A., JACKSONVILLE, FLA.

Date.	Rainy days.					Remarks.
	Nov.	Dec.	Jan.	Feb.	M'ch.	
1874—1875	14	6	15	10	5	
1875—1876	10	4	4	8	7	"Rainy days," all days on which rain fell.
1876—1877	5	10	6	6	6	
1877—1878	9	9	5	10	8	
1878—1879	5	8	5	9	3	
Average	8.6	7.4	7.	8.6	5.8	37.4 days in 5 months.
	Cloudy days.					
	Nov.	Dec.	Jan.	Feb.	M'ch.	
1874—1875	4	6	12	3	8	
1875—1876	8	4	5	7	2	
1876—1877	6	3	2	10	7	
1877—1878	10	11	11	9	10	
1878—1879	9	11	5	11	4	
Average.	7.4	7.	7.	8.	6.2	35.6 cloudy days 5 ms

J. W. SMITH, Observer in charge.

When a day is marked "rainy," but a few drops may have fallen, and it is no evidence that the entire day was rainy. A measurable or a non-measurable quantity may fall in a few minutes, and the remainder of the day be bright and clear. In Florida, the rains are frequently "torrential in short severe bursts," followed by bright and clear weather. For the purposes of comparison, we will refer to the number of rainy days during the cold months in Jacksonville, Mentone, and St. Paul.

RAINY DAYS (INCLUDING SNOW.)

Locality.	Years.	November.	December.	January.	February.	March.	5 months.
Jacksonville.....	5	8.6	7.4	7.	8.6	5.8	37.4
Mentone.....	8	10.1	7.25	5.1	5.66	9.55	37.48
St. Paul.....	1	4.	13.	8.	6.	11.	42.*

This city is built on a sand bank, where the drainage is perfect. In many situations, wells have to be sunk through sand to a depth of from fifteen to twenty-two feet before a supply of water is obtained. Great attention is paid to sanitation, and in this respect Jacksonville is not excelled or equalled by any city in the South. Dry-earth closets have been enforced by ordinance. Recently the city has been effectively sewered, by the laying of drain pipes in the streets to carry off storm water and sewage. Water works of the most perfect description have been constructed at a large outlay. No layer of clay is found between the surface and the permanent water supply, and as a result, the soil is dry and warm. The sandy soil upon which the city is built, contains but a minimum amount of vegetable matter, and, as a consequence, health is the rule. To illustrate the mortality of this city, I appealed to our efficient and intelligent Health Officer, Dr. Knight, and received the following communication :

HEALTH DEPARTMENT CITY OF JACKSONVILLE,
April 10, 1880.

Dr. C. J. Kenworthy:

DEAR SIR: A careful examination of the Mortuary Reports in the City Sexton's office, reveals the following facts :

* Dr. Jones, N. Y. Med. Jour., 1879, p. 287.

Previous to 1878, the records were imperfectly kept and are not reliable.

Mortality for 1878..... 119
Mortality for 1879..... 171

Mortality for two years..... 290
Deduct from this number visitors who died of phthisis, Bright's disease and organic disease of the heart..... 40
Total mortality of residents..... 250
Percentage of mortality among residents for two years, per 1,000..12.5
Percentage of deaths from phthisis among residents, per 1,000 ...0.55
Percentage of deaths from pulmonary diseases, other than phthisis, per 1,000..... 1.4

Respectfully yours,
A. W. KNIGHT, M. D., Health Officer.*

*As this paper is going through the press, I deem it advisable to refer to the mortality of Florida and Minnesota. At p. 277, Dr. Jones asserts that "Florida, which has been so much vaunted as a sanitarium for invalids, shows a greater ratio of mortality from phthisis *to-day* than Minnesota." At the time this statement was written, figures were not available upon which a statement of this description could be based.

To confirm or disprove the statement of Dr. Jones, regarding the mortality of Florida and Minnesota, I had a compilation of the census returns made by a competent person; and a friend favored me with a compendium of the Vital Statistics of Minnesota for the year 1879. I will append the data and allow the public to form an unbiased opinion.

FLORIDA.

Mortality per 1,000 from all causes..... 9.2
Deaths per 1,000 from consumption, including invalid visitors.. 0.60
Deaths per 1,000 from consumption, excluding visitors who came to the State in the last and an incurable stage of this disease..... 0.44
Deaths per 1,000 from pulmonary diseases, other than consumption..... 0.50
Deaths per 1,000 among residents from pulmonary diseases, including consumption..... 0.94

There was one death from consumption including visitors, to 15.2 from all causes.

There was one death from consumption among residents, to 19.2 from all causes.

There was one death from pulmonary diseases, to 8.2 from all causes.

MINNESOTA.

Mortality per 1,000 from all causes..... 11.2
Mortality per 1,000 from consumption..... 1.12
Mortality per 1,000 from pulmonary diseases, other than consumption..... 0.65
Deaths per 1,000 from all pulmonary diseases..... 1.77

There was one death from consumption to ten from all causes.

There was one death from pulmonary diseases to six from all causes.

It is gratifying to find that the mortality of Minnesota is so low; and that Florida "to-day" holds the prominent position for salubrity that she did in 1860 and 1870.

Since this paper was printed, the semi-monthly Mortuary Report of the city of Jacksonville has been published by Dr. Knight, and we find that the

Death rate of the first six months of the present year was, per 1,000	10.6
Deduct from total deaths 37 non-residents, who died of phthisis and chronic heart disease, and the actual mortality among residents was	6.9
Deaths from consumption among residents	0.

During the years '78 and '79, the mortality from phthisis among residents was surprisingly low—0.55—a fraction over one-half of one per cent. per 1,000, and for the first six months of 1880, not a death occurred among the resident population from consumption. Dr. Jones' statements regarding the great mortality from phthisis in this State, more especially among "old families, that have resided in the State for generations," is not sustained by the above reliable data.

It is gratifying to find that the mortality from phthisis and other pulmonary diseases is so low, more especially as it has been denounced as an unsuitable climate for the treatment of such cases, and the public led to believe that phthisis is of frequent occurrence here. If the mortality from these diseases is so light, it is evident that the climate must be favorable for invalids suffering from such affections. To illustrate the mortality of a number of cities, we shall quote from the Annual Health Report from the city of Yonkers, for 1879, "showing the vital statistics of American cities for the year 1879 :"

Cities.	Rate per 1,000.	Cities.	Rate per 1,000.
New York, N. Y.	24.93	Wilmington, Del.	21.62
Brooklyn, N. Y.	20.15	District of Columbia	26.58
Buffalo, N. Y.	14.19	Richmond, Va.	18.40
Rochester, N. Y.	16.24	Norfolk, Va.	21.91
Yonkers, N. Y.	14.16	Milwaukee, Wis.	14.35
Plattsburgh, N. Y.	25.00	Cincinnati, O.	17.23
Newburgh, N. Y.	17.30	Cleveland, O.	16.72
Boston, Mass.	21.53	Baltimore, Md.	21.53
Worcester, Mass.	19.25	Evansville, Ind.	19.52
Cambridge, Mass.	19.67	Chicago, Ill.	16.50
Lynn, Mass.	18.63	St. Louis, Mo.	12.00
Newburyport, Mass.	17.11	Salt Lake City.	14.00
Concord, N. H.	13.20	San Francisco, Cal.	15.80
Burlington, Vt.	10.68	New Orleans, La.	50.17
Hudson county, N. J.	20.08	Mobile, Ala.	23.05
New Haven, Conn.	17.99	Savannah, Ga.	30.25
Hartford, Conn.	16.67	Charleston, S. C.	29.16
Providence, R. I.	19.89	Nashville, Tenn.	23.11
Philadelphia, Pa.	17.96	Jacksonville, Fla.	12.5*
Pittsburgh, Pa.	21.16		

To illustrate the mortality from phthisis in a few cities, we shall quote from Copeland's Dictionary of Practical Medicine:

In Berlin, there was 1 death from phthisis to 5.7 deaths from all causes; in London, 1 to 6.2; Paris, 1 to 5.5; Hamburgh, 1 to 4.6; Stutigardt, 1 to 4.7; New York, 1 to 5.0; Philadelphia, 1 to 7.7; Baltimore, 1 to 6.7; Boston, 1 to 5.9; Florence, 1 to 11.5; Jacksonville,* including invalid visitors, 1 to 0.44; in Jacksonville there was one death from phthisis among residents to 0.10, and for the first six months of this year, not a death among residents.

As a result of having expressed myself so positively regarding the influence of climate in the treatment of disease, you must not conclude that I am disposed to ignore the use of drugs and rational medication. How often do we see invalids at a health resort deluding themselves with the idea that climate alone will effect a cure. In some cases, patients are ordered to a winter resort without any instructions for their guidance, save to "throw physic to the dogs." When patients reach a climatic resort, they fancy themselves released from the observance of medical rules, which are as necessary at health resorts as at their homes. They do not seem to realize the fact that they are invalids, and that they have left homes and friends to regain their health, but they thoughtlessly expose themselves, indulge their appetites, and are guilty of many imprudent acts. Through their own waywardness and imprudence, they aggravate disease, and the climate is censured. The invalid who seeks climatic change for the relief of his disease, should remember the old Salernitan precept:

> "*Si tibi deficiant medici, medici tibi fiant,*
> *Hœc tria, mens laeta, requires moderata dieta.*"

Much may be done by physicians at climatic resorts to aid patients in regaining their health, when suffering from phthisis, in the way of regulating exercise and bathing, recommending suitable points for residence, restoring the tone of the digestive organs, directing the quantity and quality of food, relieving cough and myalgia, arresting night sweats, hæmoptysis, and diarrhœa, the treatment of diathetic states, and last, though not least, the improvement of nutrition.

In this State, we have favorable climatic factors to aid in the cure of disease, and it rests with you, gentlemen, to

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* Report of Dr. Knight, Health Officer.

maintain and guard the good reputation of the "American Italy"—to keep pace with the rapid strides of pulmonary diagnosis, pathology and therapeutics, so that those who are intrusted to your care, may receive the benefits of enlightened and rational treatment.

Facility of access of a health resort is a matter of great importance. It is obvious that a patient should be sent to a locality which can be reached by an easy journey, and in case of need, communicate with home and be reached by friends. In this respect our favored State possesses many advantages. It can be easily and rapidly reached from the North and West by through trains and sleeping-cars, and from Boston, New York, Philadelphia, Baltimore and New Orleans, by fast, staunch and palatial steamships.

2. THE

CONSTITUENTS OF CLIMATE,

WITH

SPECIAL REFERENCE

TO THE

CLIMATE OF FLORIDA.

BY

FREDERICK D. LENTE, A. M., M. D.,

PALATKA, FLORIDA.

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THE CONSTITUENTS OF CLIMATE.

In a paper which I had the honor of reading before the American Public Health Association two years ago, in Boston, I made the attempt to enlighten the public, and especially the medical public, on the subject of the climate of Florida, its adaptability as a health resort, and especially to remove certain unfounded ideas and prejudices which have become wide-spread and deeply-rooted in northern communities. It is somewhat surprising that this should be the case with medical men, since positive information on the subject has always been accessible to them in the volumes of the "Medical Statistics of the U. S. Army," the "Army Medical Reports" and the "Reports of the Adjutant-General's Office," embracing statistics covering a space of more than forty years, which are, of course, thoroughly unprejudiced. They are particularly full of information regarding the meteorology and endemic influences of Florida. For some years past, however, a number of northern physicians have spent winters or portions of a winter in Florida, and the number is yearly increasing. The verdict of these has been uniformly favorable, as also that of the various surgeons of the army who have been stationed there, some of them for several years, during the Seminole war. The earliest visitors and the various adventurers who landed on the shores of Florida, and who left us any written evidence of their experience and sentiments, have spoken in the most enthusiastic terms of her climate. The numerous writers on the subject in the present century have expressed themselves in a similar manner, and indeed it seems almost impossible to one who has lived several winters in Florida, in describing the beauties or the advantages of her climate, not to drift into the same strain. Something of it will be noticed even in the formal reports of some of the older army surgeons. But I propose to avoid this, and to deal with plain facts as far as possible, and leave my medical brethren to draw their own conclusions.

I am disposed to think that there is a desire for further information on this subject, from the fact that my first paper was copied entire or by large extracts in various journals, and that frequent inquiries are now made for the reprints, which were long ago exhausted; while a longer residence in Florida, and a more extensive acquaintance with those who have tested the winter climate for several years, will enable me to speak with more confidence on certain topics than I was able to do at the date of my first publication.

The question of climate is confessedly a difficult one to manage, and the amount of definite, practical knowledge which one is able to gather on the subject from the numerous publications, some of them quite voluminous, is very small. In truth, the more one reads and the more facts he gathers from various sources, the more difficult the task of collation and inference becomes, since these observations are so conflicting and the various theories so confusing that it seems well nigh impossible to deduce any valuable therapeutical conclusions from them. I have addressed myself to this task for the past few years; have studied all the works on Florida from that of Le Moyne, who visited it in 1564 as artist to the expedition of Laudonnière to the latest accessible publications, including all the records bearing upon the subject in possession of the War Department, the library of the Surgeon-General and other depositories at Washington; have conversed with the Surgeon-General, the Assistant Surgeon-General, and other medical and line officers who have been stationed in Florida, and who have had experience of both her summer and winter climate; with many of the scientific and medical residents in the State; with some of her representatives in Congress; and have had the opportunity, during the past three winters, of seeing and conversing with a large number of intelligent visitors and invalids who had, many of them, sought health in various quarters of the globe, and whose evidence regarding the comparative value of climates I consider more valuable than that from any other source; since they have no interest in any particular locality, except so far as it has been conducive to the object in view. Among these, when they have remained in Florida a sufficient length of time

to form anything like an accurate judgment, there has been a remarkable unanimity of opinion in favor of her climate. The opinion of the hundreds who are scattered over the country, who have spent a month, or a few weeks, or one winter even in the State, going generally to only one point, is not worth taking into consideration; yet we have an abundance of contributions from this source in the Press of the country, and many form their judgment from these effusions. Florida has been poetically described as the "Italy of America." But those who have fully tested the climate of the various Italian resorts will consider it anything but flattering to Florida. If space will permit, this comparison will be further alluded to.

There are indications at present that our ideas on the intricate subject of climate are assuming a more definite shape, are becoming crystallized, as it were, around one central point, which, if true, will save us a good deal of perplexity and responsibility when we are asked by our patients the important question: "What climate will suit my case?" Is there any special property of climate which we may seize upon as the test of superior fitness for our purpose as therapeutists? I have reference now to one disease—Pulmonary Consumption in its various forms. These indications are that the public and the profession are arriving at the conclusion that the climate which will offer the greatest inducements to invalids to be out in the open air, or which will enable them to breathe it constantly and without danger of chilling the surface, or, in other words, that which furnishes the greatest *amount* of pure air, is, to speak in general terms, the one to be preferred, paying due regard, however, to the various constituents of climate which may influence the quality of the air. Let me briefly refer to several publications in the journals of three different countries, all falling within the last few months, for these straws show which way the wind blows. In an article in the November number of the "Popular Science Monthly," by Dr. Felix L. Osgood, entitled "Modern Troglodites," the author quotes the following from the report of the celebrated German surgeon, Langenbeck, on Small-Pox: "I have cut up more human bodies than the 'Old Man of the Mountain' with all his

accomplices; and, speaking only of my primary object, I must confess I am no wiser than before. But, though the mystery of small-pox has eluded my search, my labors have not been in vain. They have revealed to me something else, the origin of consumption. I am sure now of what I suspected long ago, viz., that pulmonary diseases have very little to do with intemperance, or erotic escapes, and much less with cold weather, but are nearly exclusively (if we except tuberculous tendencies inherited from *both* parents, I say *quite* exclusively) produced by the breathing of foul air. The lungs of all persons who had worked in close workshops and dusty factories showed the germs of the fatal disease, while confirmed inebriates who had passed their days in the open air, had preserved their respiratory organs intact, whatever inroads their excesses had made on the rest of their system. If I should go into practice and undertake to cure a consumptive, I should begin by driving him out into the *Deister* (a densely wooded mountain range of Hanover) and prevent him from entering a house for a year or two."

The drift of the whole article is to prove, as he does by arguments and interesting anecdotes, many of them familiar perhaps to most of my readers, that dwelling as far as possible in the open air, whether cold or warm, and breathing it day and night, regardless of the bug-bear of "taking cold," is the only preventive or cure of consumption. In the same journal for December is an article by Dr. Paul Niemeyer, entitled "Open Air and Health." In this he speaks of certain "throat and lung complaints which we physicians are daily more and more clearly tracing to inhalation of impure, vitiated air." The burthen of his argument is fresh air and plenty of it. "The patient must keep the window of his bed-room open. Night air is fresh air without daylight; he who fears night air is like a child who dreads darkness. In a city, night air is always wholesomer than day air, being both purer and stiller." In a late number of the "London Lancet," Dr. Handfield Jones, an eminent English physician, gives remarkable clinical evidence from hospital experience of the great value of what he terms *hyper-ventilation;* that is ventilation of sick rooms carried far beyond what the

great majority of us physicians, as well as non-professi[illegible]fession is sons, would consider judicious. The change in the entilation cases, which were considered hopeless, from throwing [illegible]n, in this windows of the wards, even in cold weather, was tru[illegible] fully ishing. Dr. J. Schreiber, of the Vienna Faculty, in a rec[illegible] address before the Austrian Meteorological Society, translated by Dr. Geddings, of Aiken, for the "Richmond and Louisville Medical Journal," also calls attention to the same subject, and concludes by saying that "the term climatic," which has hitherto been employed to denote a vague, indefinite specific, of which no rational account could be given, appears now as something infinitely clear and very simple, being in fact nothing more than pure air uncontaminated by miasma, with no organic or inorganic substances, and one in which meteoric precipitation (rain) is not unduly deficient. He shows that it is neither warm air necessarily, nor cold air, nor dry air, nor moist air that is wanted, but *air* in abundant quantity.

I do not mean to say that there is anything particularly novel in the above ideas. Individual efforts in this direction have been made for many years. Several years ago a physician in California would not allow his consumptive patients to sleep even in a tent, but put them to sleep under the trees in the dry, pure air of the locality where he resided. Dr. MacCormac, an English physician of note, insisted, many years ago, that if people would sleep with open doors and windows, there would be no consumption; the hyper-ventilation of Handfield Jones. This, then, is the key-note of the climatic cure of consumption, scrofula, and allied diseases. It is not wonderful that *air* should be so essential to the proper treatment of these affections, since a deprivation of pure air has long been recognized as the principal factor in their generation. It is hardly necessary to argue this point, but a few illustrative examples may not be out of place. In the report of the health of the Royal Navy for 1860, "accounts are given," says M. Simons ("American Journal Medical Sciences," January, 1872,) "of a form of congestive pneumonia of the apex of the lung, which had much the character of incipient phthisis, which was attributed to the overcrowding of the men in berths between decks, the hammock

accompling only fourteen inches apart. A great number of confess I were invalided rapidly improved, when they were of small- rom the cause, and were able to rejoin the service." vain. Tinstance, in the Dublin House of Industry, where crofula was so common as to be thought contagious, there were in one ward, sixty feet long and sixteen feet broad (height not given), thirty-eight beds, each containing four children. The atmosphere was so bad that in the morning the air was unendurable." In some of the schools examined by Carmichael, the food was excellent, and the only causes for the excessive prevalence of phthisis were the foul air and want of exercise. This was the case also in the house and school examined by Neill Arnott in 1832. "Two Austrian prisons, in which the diet and mode of life were, it is believed, essentially the same, offer the following contrast:

"In the prison of Leopoldstadt, at Vienna, which was very badly ventilated, there died in the years 1834–1847 378 prisoners out of 4,280, or 86 per 1,000; and of these no less than 220 or 51.4 per 1,000 died from phthisis. There were no less than 42 cases of acute miliary tuberculosis."

"In the well-ventilated House of Correction in the same city there were in five years (1850–1854) 3,037 prisoners, of whom 43 died, or 14 per 1,000, and of these 24 or 7.9 per 1,000 died of phthisis."* It would be useless to take up space in multiplying these instances. But perhaps some of my medical friends who follow Niemeyer will say the majority of cases of phthisis are not tubercular, but inflammatory, and are therefore not due to this cause. But few cases of consumption, I think it is safe to say, result from cold, or the inflammatory chest affections commonly ascribed to exposure, in *otherwise healthy subjects.* There is predisposition, which is the result doubtless almost invariably of faulty habits of life, resulting among other things in imperfect nutrition, debility, deficient æration of blood, etc.; and the deprivation of a due amount of pure air, especially while sleeping, and during the most of the twenty-four hours in winter, is no doubt the most important factor in the production of this lowering of vitality; the first step towards the

* Manual of Hygiene. Parkes.

production of tubercle and scrofula. The medical profession is becoming fully alive to the importance of thorough ventilation in the *treatment* of disease, as the almost perfection, in this respect, of many of our recently-constructed hospitals fully attests.

Closely connected with the *amount* of out-door air which an invalid will get at a winter resort is the *temperature*. Let us, therefore, first turn our attention to the *winter and spring temperature* of Florida, and compare it, as well as its *equability*, with that of other places. I have abridged the following table, by Dr. A. S. Baldwin, published in the Proceedings of the Florida Medical Association, 1874–75:

	Spring.	Summer.	Autumn.	Winter.	Year.
Jacksonville	70 06	81.82	70.35	56.33	69.38
St. Augustine	68.54	80.27	71 73	58 08	69.61
Palatka	70.62	83 57	70 20	57.18	69.64
New Smyrna, Indian River	71.80	79.14	62.43	63.22	69.17
Florida	71.62	80 51	71.66	60.04	70.95

Referring to the winter and spring months, the temperature of Florida may, in general terms, be compared to that of a typical May and September in the Northern States, with some quite warm and some quite cool variations, which will again be referred to. There is a very erroneous idea prevalent with regard to the temperature of the month of April, and the first warm weather of March is apt to drive invalids off to seek a cooler climate, under the impression that the heat must necessarily be oppressive. Though the temperature of April, as indicated by the thermometer, may be considerably higher, it is not infrequently a more agreeable month than February or March, as was the case this year. The following table was furnished me from the signal office at Jacksonville, for which I am indebted to the kindness of Mr. F. Z. Gosewisch, the signal officer:

MEAN TEMPERATURES.

	1873.	1874.	1875.	1876.	1877.	1878.
March	58.9	66.0	60.1	60 9	60.8	65.4
April	69.1	70.0	62.8	68.8	68.2	71.3

The heat *in the sun* is, except during the morning and late in the afternoon, often somewhat oppressive, but there is almost always a sufficient sea breeze, commencing at 9 or 10 o'clock A. M., and lasting until sundown, to render it very pleasant in the shade. This, indeed, is the case even in the summer months, and the testimony of Northern people who reside in Florida the whole year, is that the early morning, the late afternoon, and the evenings are not unpleasantly warm, as a general rule; that is, when one has free access to the easterly wind which generally prevails as a sea-breeze at pretty regular hours. The army records show that the thermometer in Florida rarely rises as high as in most of the Northern States and Canada, but of course the heat is more continuous. A temperature, however, which would be felt as very oppressive in the Northern States, except on the seacoast, is in Florida quite endurable, owing, no doubt, to the peculiar configuration of the State, jutting out, as it does, in a narrow strip into the ocean, and with rivers or other considerable bodies of water scattered liberally over its surface. The isothermal of 70°, the April temperature of Palatka, passes through that place, through Galveston, New Orleans, Teneriffe, Alexandria and Canton.

Equability of Temperature.—Writers on medical climatology were at one time disposed to regard this as the most important quality; but, as in the case of dryness, moisture, rain-fall, and other characteristics, it is now thought advisable to define the *degree* of equability. Many travellers who have spent but a short time in Florida, and who have been led to look for perpetual spring, have been surprised at the not infrequent changes in certain months, and have disseminated erroneous ideas as regards their frequency and severity. The *diurnal range* for Florida is 13° to 14°, and for Palatka still less; while those variations, which occur at longer or shorter intervals, are within moderate limits, so as not only not to produce unpleasant effects on the most delicate invalids, but are decidedly beneficial, especially to the worst cases of pulmonary disease, acting as a tonic and tending to vary the monotony, which, in tropical climes, is so injurious. Nothing acts so unfavorably on all forms of invalidism as monotony of any kind. In tropical countries,

where these changes are so rare that no provision against cold is made, except to bring a small brazier of coal in the invalid's room, they are to be deprecated. But in Florida they are pretty uniform, and the wood-fires in the open fire-places, with which the hotels and boarding-houses are well furnished, are greatly enjoyed by all persons, sick and well. The evenings and nights are so cool throughout most of the winter, and even early spring, that a wood-fire is commonly seen in the sitting-rooms.

Turning to the evidence of army officers, Dr. Southgate remarks, in his report: "Rarely is the change so great as to impress the individual in fair health uncomfortably, and the invalid has invariably sufficient warning to guard against it." Surgeon-General Lawson, speaking from an extended personal experience, says: "The climate of Florida is remarkably equable and proverbially agreeable, being subject to fewer atmospheric variations, and its atmospheric ranges are much less than in any other part of the United States, except a portion of the coast of California."

Sir James Clark, in his well-known work on Climate, remarks: "A long residence in a very equable climate is not favorable to health, even with all the advantages of exercise in the open air. A moderate range of temperature and of atmospheric variation seems to be necessary for the preservation of health." Turning to a more recent authority, 1877, and one of the best, Dr. Charles Th. Williams,* referring to the invalid's dread of cold changes, says: "And herein lies their mistake; for if our invalids could indeed find a lotus-eater's land

> In which it seemed always afternoon,
> All around the coast the languid air did swoon,

I would predict that the results on their health would be rather pernicious than otherwise, and loss of appetite and diarrhœa would probably be induced." This constitutes one of the prominent distinctions between a tropical and a semi-tropical clime; between the West Indies or Nassau, for instance, and Florida.

A good deal of attention has lately been devoted to *high altitudes* for consumptives, and various theories have been advanced

* Influence of Climate in Pulmonary Consumption.

to explain the effect of elevation. Thus, Mühry thinks the effect is due mainly to the necessity for greater expansion of the chest in consequence of the *rarefaction* of the air; while Weber ascribes it to a cause, among others, just the reverse—the superior oxydizing power of the air from the presence of much ozone, thus lessening the amount of air necessary, and thus requiring less expansion, placing the crippled organ in a comparative state of rest, as it were. But all the theories have been disproved by further observations. "It was soon demonstrated," says Schreiber (op. cit.), "that the altitude at which this immunity commenced varied with latitude, being higher the nearer we approach the equator, which could not be the case if the above theory were correct, the law of diminished pressure being everywhere the same." "An inquiry instituted in Saxony, at the expense of that government, proved that elevation had nothing to do with immunity, very high localities in the Erz and Riesengeberge exhibiting a large percentage of phthisis as soon as the inhabitants turned their attention to the industrial arts, such as mining and the manufacture of china; while, on the other hand, the percentage in the lowlands was diminished when the people were engaged in agriculture and cattle-raising." In other words, that it was the abundance of good air and not any peculiar property of it which effected the good results. Nor are the assertions of writers as to the complete immunity of the natives of high altitudes in other parts of the world, in the Jauja mountains of Peru, for instance, confirmed by later observers, although all agree that consumption is rare;* but so it is in Florida among the white race; the disease in the exceptional cases being, as a general rule, induced by bad food and bad habits. In fact, it is now sufficiently well demonstrated that it is to be found everywhere. Richard Payne Cotton, M. D., Senior Physician to the celebrated Brompton Hospital, England, says:† "And here I would make a passing remark on the now rapidly dying-out question, that there is

* "Lombard's Statistics," says Williams, "give us a phthisis mortality of 5 per cent. up to nearly 4,000 feet." Dr. Ludwig found a case of consumption in the Engadin, which boasts of entire immunity, who had never lived at a lower level than 4,000 feet.

† British Medical Journal, 1877.

anything in any one climate, wherever it may be, which is opposed to the development or even the increase of tubercular disease—consumption exists everywhere. There is no favored spot where it is not. There is no 'promised land' for our consumptive sufferers where they will fail to meet consumptive sympathizers." The valuable statistics which we get from the Army Medical Reports of England demonstrate this conclusively. It has been long thought that intensely cold countries, near the poles, for instance, were absolutely free from phthisis. But, notwithstanding the positive assertion to the contrary, the Army Reports tell us that, "with the exception of epidemics, diseases of the chest furnish the largest quota of mortality," and mention that "*consumption is common.*" So is it in Shetland and Iceland, according to the excellent authorities quoted by C. T. Williams (op. cit.). "The Army Medical Reports," says Parkes (Practical Hygiene), "show how little reliance can be placed on the cold-immunity theory, for it appears that the mortality in Bengal from phthisis is almost precisely the same as in Canada (1.70 and 1.71 per 1,000, respectively). "In the Presidency of Madras, which is an exceedingly hot region, our Army Reports," says Williams, "assign one of the lowest phthisis mortalities of all the countries where the British army is stationed; while among the Sepoys, the mortality from this cause is even less."* "But,"

* In 1870 the deaths from consumption in the United States amounted to nearly 70,000, more than double the number from any other cause. In the different States the mortality from consumption, taken from Dr. Bizzell's report (Medical Association of Alabama), is as follows: In Maine, 1 to every 3.9 deaths from *all causes*, or 1 to every 315 of population; New Hampshire, 1 in 4.5, 1 death to 334 of population; District of Columbia, 1 to 4.6, or 1 to 298 of population. The mortality from phthisis in the States of Vermont, Rhode Island, Connecticut, Delaware, New York, New Jersey, Ohio, Pennsylvania, *in fact*, every State and Territory of the Union north of the 38th parallel, ranges from 1 in 3.9 in Maine to 1 in 11.9 in Kansas; and in no State north of this does the mortality fall so low as 1 in 12, save in the Territory of Wyoming, where the statistics are too scant to be worth much. In Minnesota it is 1 in 7.6 deaths from all causes; in California, 1 in 7.2; in Arizona it is only 1 in 250 from all causes; in New Mexico, it is 1 to 26 2; Nevada, 1 to 20.5; Florida, 1 in 17.3; Texas, 1 in 16; Louisiana, 1 in 10.3; Georgia, 1 in 15.6; Alabama and Arkansas, each, 1 in 14.2; Mississippi, 1 in 13.2; South Carolina, 1 in 11.2; North Carolina, 1 in 8.6; Virginia, 1 in 7.2.

We see from this table that in all the States east of the Mississippi, Florida has the smallest mortality from phthisis: and a considerable share of this mortality should be attributed to persons coming into the State from other States and dying there, many of them in a hopeless condition on their arrival Allowing for this, the rate is probably as low as in New Mexico or Nevada.

he says, "the crowning objection" (alluding to the diminished pressure theory) "appears to come from Asia, from the Kirghis land. According to M. Maydell, this vagrant population of over a million in number are quite exempt from phthisis, although they live, not in Himalayas or Andes, or on Alps, but on a steppe one hundred feet below the sea level." The foregoing facts will give some idea of the difficulties which environ this subject of the effect of climate on consumption. Take the famous health resorts of the south of Europe, for instance. "In Nice," says Dr. Meryon ("London Lancet," July, 1850), "more *natives* die of phthisis than in any town in England of the same population." In no country, says Dr. Pollock, is consumption so rapidly fatal as in Genoa, Florence, and Naples ("Medical Gazette," volume xlvi). In Madeira, consumption is frequent among the natives. In Australia, to which many of the English resort for the relief of consumption, it is quite common. But, of course, in all these places we must make due allowance for the condition and habits of the people as a factor in the development of phthisis.

With regard to the *elevated regions*, about which so much is written now, and which are becoming so fashionable, for the sway of fashion is omnipotent and omnipresent, it is worthy of note that in almost all, if not all of them, diseases of the respiratory organs are very prevalent. Speaking of the Peruvian mountains, where it has been asserted the natives are almost entirely free from disease, Williams writes: "The diseases most prevalent are those of the respiratory organs, such as catarrh, pharyngitis, pleurisy, pneumonia, pleuro-pneumonia, and are all marked by an adynamic type.* Diseases of the brain

* "It has been long observed that the inhabitants of elevated mountain districts appear to be peculiarly exempt from consumption, and an attempt has been made of late to turn this observation to practical account by recommending such localities as health resorts for the phthisical. It is, however, more than doubtful if the fact that the hardy mountaineers who inhabit Alpine districts, and whose lives are passed under the most favorable hygienic conditions as regards pure air and exercise—the natural prophylactics against tubercular disease—are rarely attacked by consumption, can be regarded as a proof that these localities are therefore suitable winter resorts for patients already phthisical, and whose state of health would, in such elevated and oftentimes intensely cold and variable climates, probably confine them to the house in the new sanitariums of the Engadine, or other Alpine resorts, during the greater part of the winter." Madden (op. cit).

and spinal cord are common." Similar reports, except the frequency of pneumonia, come to us in the American Army Medical Reports from all the posts situated on these high elevations (5,000 to 7,000 feet). *Neuralgia* and *rheumatism* are very common in those altitudes, and *nervous diseases* are aggravated. Dr. Dubois, of San Rafael, says ("Medical Record," March, 1872,) the same of that region, although it is highly commended for other affections. Another peculiarity of these elevated regions, of all very dry regions generally, is the extraordinary *range* of temperature. Thus, Assistant Surgeon J. H. Patzki, writing from Fort Fred. Steele, Wyoming Territory, says "a daily range of 40° is frequently observed, of 50° not rarely, and of 60° occasionally" (e. g., Aug. 9, 1874, max. 86° min. 26°).* In these regions there is also a peculiar *fever* prevalent, which is serious, and not infrequently fatal. It is known all over the United States, in the mountains, even at moderate elevations, and is called by the people and by the medical men "mountain fever." It has usually been described as a *typhoid* fever, but the medical officers of the army have established the fact that it is a remittent and of malarious origin.

Before dismissing the subject of the effect of high altitudes, which, by the by, have very different effects as to respiration, etc., on different individuals, it may interest those who send their patients to these places to know the effect elevation produced on a medical man and how he treated it. Assistant Surgeon W. H. Gardner, U. S. A., stationed at Fort Union, New Mexico, thus relates his own case:

"Shortly after arriving at the post, I was attacked with a fullness in the head, ringing in the ears, mental hebetude, and confusion of ideas, dizziness and headache. Thinking these symptoms might be caused by constipation, dyspepsia, or torpidity of the liver, I took a mercurial purgative, and followed it by a dose of Rochelle salts, which relieved the fullness of oppression for a day or two, but it at once returned, the dizziness and confusion of ideas increased, and a feeling of numbness and tingling commenced in the fingers of the left hand, and gradually spread until it involved the whole left side, even the muscles of the tongue being involved in the paralysis, so that I could not

* Dr. Gehring, of Denver City, graphically describes the risk of sending patients to these elevated regions (Territorial Medical Society, 1873). He says if he has vigor and *digestive force*, and "if his disease is *not too far advanced*, let the patient be sent to Colorado; without it let him be advised to remain at home. Our Territory is like a wild steed. If you can tackle him he will carry you out of your difficulties; if you can not, he will break your neck."

articulate. There was also oppression of breathing, throbbing of the carotids, and slight dilation of the pupils. The only medicine handy at the time of my first attack was a bottle of chloroform; and thinking the symptoms might be due to spasm of the cerebral or pulmonary veins, I poured a drachm or two on my handkerchief and inhaled it, when the disagreeable symptoms promptly subsided. The next day, on my visit to Dr. Moffat, of our corps, I told him of my troubles, and he thought they were due to malarial poisoning, and advised me to commence a course of quinine and arsenic, which I at once did, taking twelve grains of quinine and one tenth of a grain of arsenic each day. But, in the course of five or six days, while under the full influence of these remedies, I had another attack in all respects similar to the first, coming on after a hearty dinner, which was relieved by a prompt emetic. Shortly after this second attack, I was sent for to attend a case at Mora (fifteen miles northwest of the post, about four hundred feet higher in altitude), and while there alone, I had another attack, more severe and prolonged than the other two, and upon this occasion I certainly thought there would be another vacancy in the medical corps to fill, for I took emetics, bromide of potassium, and chloroform *ad nauseam*, without the least effect. The symptoms went off before morning; but when I got back to the post, I brought the Darwinian theory to bear on the case. *Ita:* If the environment of an animal be suddenly changed, and the animal does not change his habits to suit his environment, it will be speedily eliminated. The only radical change in environment which I could detect here was decreased atmospheric pressure from increased altitude, and consequently deficient oxygenation of the blood. The indication, therefore, was either to supply the deficiency of oxygen to the blood, or to reduce the volume of blood to the decreased amount of oxygen. The latter alternative seemed the easiest and most certain. I therefore decreased the amount of my nitrogenous food, and made up the quantity by laxative vegetables and fruits, and have been in good health ever since. I have seen two cases since, in every respect similar to mine, and they have promptly succumbed to the treatment indicated; that is, decreasing the amount of blood to the decreased amount of oxygen by cathartics and decreased animal food."

Dr. Charteris, in a clinical lecture at the Glasgow Royal Infirmary, lately remarked: "The benefits of warm climates and of well-known health resorts for phthisis simply consist in this, that out-door exercise can be indulged in those with greater impunity and with less chance of in any way lowering the vitality."* This is the gist of the whole matter of climate. Though patients with pulmonary troubles *can* bear cold if they *will*, and do improve and recover in the coldest climates; though they even do better, as a general rule, in a rather large class of cases, in a moderately cool climate, if not moist; though they recover in mountain ranges from six to ten thousand feet above the sea level; yet I am confident that, in the end, it will be found that the majority of consumptive invalids will do better

* "Preference should always be given to those winter resorts," says Madden, "Health Resorts of Europe and Africa," 1876, "which present the greatest inducements and opportunities for open-air exercise; and no small part of the benefit derivable from removal to a southern health resort results from the opportunies afforded in the latter of being much in the open air."

in a moderately warm and moist climate like that of Florida than in any other variety, because nearly all such invalids shrink from moderate degrees of cold, and even if they have sufficient vitality, have not enough energy, will, or perseverance to brave any considerable degree of cold day and night, as they must do to get the benefit of the climate. A climate must not only be such as to render it *safe* for them to be out at all suitable hours, but to entice them out, to make them ashamed to stay in-doors. A mean winter temperature of about 48°, and spring temperature of 55°, which is that of the winter resorts immediately north of Florida (of course it is far colder at Asheville and similar stations) is too low to *entice* many of the feeble invalids out of doors, except on calm, sun-shiny days. But in some of them, as at Aiken, this degree of cold is much enhanced, as far as the sensations of the invalid are concerned, by the winds which frequently prevail.* At such times most invalids will, therefore, be found hovering over the comfortable wood fires, just as they do here when one of our cold transitions occur, and will be pretty sure to keep all the apertures of their chambers closed at night, thus depriving themselves, during by far the greater part of the twenty-four hours, of the principal means of cure.

The mean temperature of these six months in Florida is, by our tables, about 63°; and, during about five-sixths of the days, the sun shines so brightly, the air is so balmy, the song of the birds so enlivening, and the orange trees, in their delicious bloom or laden with their golden fruit, lend such a charm to the outlook from the windows, that the most indolent or the most cold-blooded invalid feels little inclined to stay in-doors. Contrast such a winter with that of the boasted and time-honored resorts of Southern France and Italy, even in their most protected cities. I will say nothing of their spring, for no one who has ever tried it, or has inquired of any reliable authority about it, would trust himself there after the first of March. Even in the most sheltered localities, as at Cannes and Mentone, a change, on one of the most pleasant days, from the sunny to

* Dr. Kane estimated that it made a difference of 40° in the polar regions when he turned his face instead of his back to the wind.

the shady side of the street, often produces a shiver, and renders necessary for an invalid an extra covering;* while in all the resorts of the Eastern Riviera this is always the case. At sunset one must rush home and in-doors for his life; nor does any prudent man dare to ride out in the afternoon without the wraps he would require in his northern home. Such is the case even in Algiers, which is a superior climate to that of the north shore of the Mediterranean. My friend, Dr. W. F. Jenks, informs me that, while walking into the city, in an uncomfortably hot sun, he always carried a thick overcoat on his arm, for the moment he struck the shady side of one of the narrow streets, a shiver passed through his body; and, while riding, he always provided himself and family with thick woollen wraps for the change which was sure to take place near sunset. "Though the temperature of Hyères in winter, *as marked by thermometer*, is not low, the air is sharp and often cold. The misral is not infrequently painfully experienced, especially in January, February, and March. In spring, the sun acquires great power, and its influence, alternating with the occasional cold winds, produces frequent and rapid changes of temperature very trying to those in health." Speaking of Nice, the same author says:† "In winter there is a difference of 12° to 24° between the temperature of places exposed to the south and the north, between those in the shade and the sun." In Florida, during most of the warm and pleasant days, one may not only be out at sunset on land, but with equal comfort on the water. I have frequently called the attention of persons to this contrast with the European climates when we were returning from a row at sunset; some of us in midwinter, in our shirt-sleeves. Had there been any considerable degree of dampness in the air, this would not have been prudent or comfortable. But one seldom

* There is a saying in Rome that "only dogs and strangers go on the shady side." Dr. Dubois, of San Rafael, says of the much-vaunted Mentone: "I remember a number of chilly, windy days, which, without the ordinary conveniences for making fires, were spent wrapped up in overcoats, and in endeavoring to make a fire, that should remind us of home, with several baskets of olive-wood." Such is the opinion of those who winter at similar European resorts, most of which are more exposed than Mentone, unless they happen to be on the sunny side of the house.

† Edwin Lee, Prize Essay, London.

feels any dampness on sunshiny days. Those who have never been south, and who are shivering in a winter temperature of 10° to 30°, may think that 48° or 55° would be abundantly warm to insure ability and inclination to exercise in the open air; but while a winter temperature of that degree in New York or Boston would seem like summer, it is considered in Florida, even by sound persons, as entirely too cool for comfort. A person requires much warmer clothing in the South than at the North, at the same temperature. The air here during the greater part of the winter, with the exception of a brief series of days now and then, when an almost summer temperature is reached, is, in connection with the pleasant surroundings, exhilarating, not debilitating. It is a great mistake to suppose that warmth, *per se*, is inimical to health or strength; heat is, not warmth; such a temperature is only such as nature requires to keep all the organs in a healthy state of action. The warm weather of the spring and autumn at the North, and even the comparatively hot weather of summer are the healthiest seasons. Persons make themselves uncomfortable by fuming over the thermometer, but they don't get sick, or not sufficiently to send for a doctor. But unusual summer heat or winter cold, long continued, equally tends to swell the bills of the doctors and the undertakers.

There is a remarkable unanimity, within the last few years, in the opinions of the medical reporters from all sections of our country, from the Atlantic to the Pacific, from the level plains and the highest altitudes, from very cold and moderately cold regions, on this point, that only cases of incipient phthisis, that is, *tubercular* phthisis, are likely to be permanently benefited, and almost all of them warn against sending cases of advanced disease, even when not much enfeebled. Dr. Gleitzmann, of the Sanitarium at Asheville, N. C., seems to be of a different opinion. He says (Trans. of the Med. and Chir. Faculty of Md., 1875, p. 204): "The patient, after returning home" (from southern climates), "has not acquired that power of resistance which alone can prevent a new bronchial catarrh or fresh catarrhal inflammation attacking the alveolæ of the lungs. As much as ever, he is exposed to the same danger of a

relapse from the same causes, or is perhaps inclined to it in a still higher degree, as the warm, humid atmosphere has served more to enervate than to invigorate the system." He quotes Madeira as the type of such southern climates. On the contrary, the reporters from the cold regions, as in Minnesota, and the less severe regions further south (see Transactions of State Medical Societies and Army Reports) say that invalids, even after a residence of several years, and a subsidence of all the symptoms, are very apt to relapse on returning home, and frequently regain their health on repairing again to the colder regions; and they strongly urge invalids to remain permanently, or for a long time, at least, after the subsidence of all bad symptoms. Sometimes these climates fail for a year or more, or a series of years, to fulfill the expectations of the physicians there and their patients, and from causes not always fully explicable. Thus, in Minnesota, for instance, this was found to be the case. And the Committee on Climatology, Epidemics, and Hygiene proposed a question as to the cause to the physicians of the State. "The question," says the committee, "originated in the belief that the climate of this State, from some cause or other, operated less favorably on consumptive patients than formerly." The answers were all, except from one who had no phthisical patients, in the affirmative, that the climate had lost its usual effect. "Dr. J. E. Finch had several consumptive patients under notice, all of whom failed with unexpected rapidity on the approach of spring. Some of these had come to Minnesota with the disease in its early stages, and had been so much benefited by a residence here as to believe themselves quite recovered." Some inscrutable agency was at work, which may influence any climate at times, whether hot or cold. This question, that is, as to the failure of all climates to relieve a very large majority of cases in the later stages of consumption, may be considered settled. But when confidence in the "hyperventilation" system becomes general among the public and the profession, we may reasonably expect a far better showing from climatic treatment. In the meantime, the warmer and pleasanter climates will naturally succeed better than the colder, notwithstanding the alleged superior qualifications of the latter in other respects.

Malaria.—This is a topic which inevitably enters into the discussion of all southern climates. So much has been said about it both in and out of Florida, and there have been so many misrepresentations about it as to render necessary a more extended notice than it received in my first paper. A great injury has been done to Florida as a winter resort unwittingly, both by physicians and laymen, who have been accustomed to associate the idea of this State with that of swamps, alligators, and fevers, and wittingly by those who think it their *interest to* misrepresent facts.* It is a matter of the first importance that physicians at least should have correct ideas on this subject, otherwise patients are apt to be debarred from deriving benefit from the very best season of the year here, the *spring months*. In the first place, tourists travel almost always along the water courses, and seeing them, on either side, bounded apparently by interminable swamps, are apt to form an erroneous idea of the extent of the swamps of Florida. They usually form only a narrow belt along the river, and immediately behind are the pine lands, except when a strip of hammock intervenes, often the tops of the pines being visible over the swamp.† In many of these swamps the tide ebbs and flows, and they rarely give rise, even in summer, to any serious form of fever. In the second place, the sickly complexions and gaunt forms of many of the native Floridians, who are met with at the landings, are apt to suggest the continued inroads of malaria. But these appearances are due not so much to the climate as to their peculiar mode of life, their scanty clothing, sufficient for three-fourths of the year, but not for the winter months; their unsuitable habitations, but especially their food and drink. From

* It is the custom of many persons living at Florida resorts, off the St. John's river, to represent, for very obvious reasons, to tourists, that fever prevails there the year round, and that it is dangerous to visit it at any time. In this manner they have excited alarm in the minds of those proposing to come to Florida, and have diverted them to other southern resorts; thus, in the end, injuring themselves as well as others. Hotel runners and the agents of steamboat lines running to other localities all aid more or less in this fraudulent attempt to secure custom.

† A great advantage of the peculiar distribution of the different kinds of land in Florida is, that the hammock or richest lands and the pine are in such close proximity, that the farmer can work in the former by day and retire to his house in the latter at night, where he is comparatively secure from the danger of malaria or any dangerous form of it.

early childhood they live on sweet potatoes and the everlasting hominy and grease, the melted fat of pork stirred liberally in hominy, not always well boiled. This they become so fond of that they do not care for anything better, although game and fish surround them almost everywhere. This food, and their drink from the shallow wells, or the dark-colored water of the sluggish brooks, begets dyspepsia, or as they term it, "biliousness," and then come "Tutt's liver pills," or some powerful cathartic, which affords temporary relief. The people in the cities and villages, and the families of northern men along the water courses, who have brought up their children there, but who live differently, present an entirely different appearance. In this village they will compare favorably with those in any northern town. James Johnson ascribes the horrible aspect of the inhabitants of the fertile but malarious plains of Lombardy mainly to the same causes. Their food and drink are even worse than that of the Floridians in quality, as are also their houses. Sir James Clark, on investigating the cause of a considerable prevalence of consumption in the Island of Madeira, found that it was due almost entirely to the habits of life of the poorest peasantry, among whom almost all the cases occurred. They are "hard-worked and miserably nourished, badly clothed and worse lodged; their beds consist of pallets of straw raised a foot or so from the ground, damp during nine months of the year." So we infer that a location is not necessarily unsuitable for invalids because the appearance of the inhabitants is unfavorable, or because a considerable amount of disease prevails, even the very disease for the alleviation of which the invalid desires a change. I quote the following paragraph from my former paper:

As regards *liability to disease* in Florida, a careful examination of the "Medical Statistics of the Army," extending through a long series of years, personal observation and conversation with medical and line officers engaged in the Seminole war, indicate a remarkable exemption throughout the State from malignant or even very serious diseases.* "At all seasons,"

* Forry (Climate of the United States and its Endemic Influences) says alluding to St. Augustine: "This is only the second time that yellow fever has prevailed in this city for twenty years." This refers to about 1840. Since

says Forry, "with the exception of the northern division, the mortality is lower in East Florida than in any other class of posts." He ascribes this, in a great measure, to "its being nearly in a state of nature." In the "Statistical Report of the Sickness and Mortality of the U. S. Army" from 1855 to 1860, is a table at page 163, which exhibits the mortality and sickness among the troops stationed at the interior gulf ports, and embracing, especially, as regards the former, the most unhealthy part of the peninsula. The number of *cases* for the year is 19,312; the *deaths* 119, or 0.61 per cent. There were but four cases of *congestive* fever, none of which died. They could hardly have been of the severe character of those met with in other Southern States. If we take into account the very unfavorable circumstances surrounding the small commands scattered over this area, the bad water, poor food at times, hard work, and continuous exposure, the small percentage of mortality is remarkable, and shows that although the cases reported for treatment are numerous,* the diseases of all kinds were very amenable to treatment and

1857 there has been no yellow fever in East Florida, except two or three cases brought to Gainsville a few years ago from Pensacola, where it is apt to be conveyed from Havana, until last summer, at which time all the conditions for its spread were more, perhaps more, rife than they had ever been. Both Fernandina and Jacksonville were in a most unsanitary condition, when a case, through a careless quarantine, was brought into the former place; so long a period of exemption having naturally caused a great relaxation in vigilance. The severe lesson which these cities have received will insure strict attention to quarantine regulations for some years to come. The authorities of Jacksonville have been prompt and liberal in voting a large appropriation, and have already made extensive sanitary improvements, and the work still goes on. It is hoped and expected that next winter will find these cities as free from fevers of all kinds as usual at this season. It is a remarkable fact, and indicates how little yellow fever is disposed to spread in Florida, that in the several months during which it prevailed in Jacksonville, with unrestricted intercourse (except during a brief period with Palatka), with all places along the river, steamers plying to and fro daily with freight and passengers, not a single case occurred at any point along the St. Johns south of Jacksonville, and only one case, as far as I am aware, on any boat. This occurred in the person of the pilot of the Volusia, while I was on board. He returned to his residence in Jacksonville, and died there. In 1857 a few cases were brought to this place, but, though no precautions were observed, it did not spread to any other person. The recent epidemic did not attack a very large number of persons at Jacksonville, and the expediency of declaring the disease epidemic at all was debated for some time by the authorities. At Fernandina, though the *number of cases* was large (about 1,200), the mortality was small; about 60, so far as I have been able to learn, indicating a comparatively mild form of the fever.

* Soldiers report for relief from duty for the most trivial affections.

rapid cure, as all the military operations went on successfully, notwithstanding this large amount of sickness. The very small percentage of deaths from diseases of the respiratory organs is especially noteworthy—only 13 cases among the 19,000 of all diseases treated. Notwithstanding the dampness, rains and exposure, there were only 33 cases of pleuritis and 25 of pneumonia. "I have served in Florida," says Surgeon-General Lawson (letter to the Hon. D. L. Yulee, U. S. Senate, 1855), "and have served also with an army on the northern frontier, and from my experience of the influence of climate and active operations of the army in the field on the health of soldiers, I have no hesitation in expressing the belief that, had the troops engaged in the Florida war been engaged for the same length of time in active operations, in winter and summer, on the frontiers of Canada, though the *cases of disease* might have been less numerous, the *mortality* would have been infinitely greater than was experienced in Florida."

Of course there are here, as in other States, healthy and unhealthy areas, and areas where the *summer* heat is found to be more intolerable than in others. It behooves the settler, therefore, or the invalid, if he proposes to make the State his *permanent* residence, to look well to this circumstance. Along the St. John's river and its vicinity, malarious diseases are, during the summer and autumn, more prevalent in some localities than in others, and especially where numbers of people locate at once, and commence clearing the hammocks and swamps on a large scale, in order to form a village or "settlement." Places which have been reputed healthy have become the reverse, from admitting the sun's rays suddenly and extensively to a surface previously shaded by the forest and undergrowth, and from turning it up with the plow. This is a well-known fact. A remarkable instance of this action over a large extent of country is the unusual prevalence of malaria during the past eight or nine years over a large portion of the Northern and Eastern States, and some of the Western States. It is not the forests which have been cut down, but during all this period, until within the past twelve months, when rains have been more frequent, an unexampled drought has prevailed winter and sum-

mer, only surface rains having occurred, but not sufficient to penetrate to the sources of springs and wells, so that these gradually dried up, and on several occasions farmers were compelled to take their cattle long distances to brooks to give them water. The snows have also been very deficient in winter, not sufficient to wet the subsoil. Large surfaces, therefore, which had always been kept cool and moist in summer by springs, became dry, and wherever there was an impervious subsoil or rock, there the malaria was generated. This has been, in my opinion, the most potent if not the only factor in the causation of the marked increase of fevers in all these areas.

But tourists and the great majority of invalids are only concerned with the *winter* climate of Florida; and while it can not be denied that persons may contract ague here in any season of the year, just as they are doing all over the country, especially of late, yet it is so rare among visitors that it need not, and should not, enter into the calculations of those whose condition calls for a winter residence in a mild climate. No climate on earth is perfect. Persons who have suffered for years from malaria at the North have recovered from its effects here; the escape from the injurious influence of a severe winter and a changeable spring having improved the tone of the nervous system. The writer affords an illustration of this. Having suffered for a long time from malarious fever among the picturesque and formerly salubrious highlands of the Hudson, he was strongly advised by his medical friends at the North not to remain longer on the St. John's than the first of April. He did, however, remain until near the middle of May, has continued to remain late in the spring for three years, and has entirely recovered from his malarious torments, though failing to get relief previously even in Saratoga. As another illustration of the immunity from fever here in the winter, enjoyed by Northern visitors, it may be worthy of mention that of the large number of employés of the hotel in which the writer boards, and the proprietor's family, scarcely a case of fever has occurred in three years, although they remain until May, and most of them are by no means very careful of their health.

It is well known among physicians that other causes than

miasm or the emanations from swamps, are capable of producing, and are actually producing every day, symptoms precisely analogous to those of intermittent fever, and which yield to the same treatment; and it is well that visitors to Southern resorts should understand and remember this: first, that they may, as far as possible, avoid these causes; and, secondly, that they may not be frightened away from a pleasant and suitable locality under the fear that their symptoms are caused by influences arising from its surroundings, instead of, perhaps, their own want of prudence.* Some experienced and thoughtful physicians, who have so constantly observed malarious attacks arising from causes which could not possibly be connected with marsh miasm, have gone to the extreme of denying that the latter ever has anything to do with these attacks. Dr. Black, of Ohio, has read two interesting papers on this subject before the American Medical Association; and facts, furnished by high authority, abound all through medical literature which tend to support his views. But, as usual in such discussions, the medium course is the safest. The fact, however, that so much doubt should have been engendered in the minds of medical men indicates that, at least, sometimes, and I think frequently, intermittent fevers, and malarious attacks allied to them, occur from causes having no necessary connection with marsh miasm; also, that when the effects of miasm have long disappeared from the system, these causes will re-develop the disease. Among these numerous agencies may be mentioned, in general terms, any cause which tends to lower vitality; want of proper food, nervous shocks, exposure to wet, or to severe cold, or long-continued cold, depressing emotions, excessive diurnal variations of temperature, etc. Dr. Black lays great stress on the latter. Some of these causes will develop malarious symptoms *de novo*, while some will only re-develop them when they are slumbering. A notable example of the latter, the effects of cold on a popula-

* Patients with pulmonary disease ought also to be informed by their physicians that chills and fever, which are precisely like the miasmatic as regards their phenomena, are apt to occur as an incident of their disease. But in such cases, medical advice should always be sought, as it is important to determine whether there is or is not a malarious complication.

tion, occurred in the practice of the writer a few years ago. There had been a great prevalence of malarious fever during the summer and autumn, but cooler weather and finally frosts caused their disappearance to a considerable extent. But in midwinter an unusually low temperature continued for a number of days, and immediately after there was a great increase in our fever cases. The effect was precisely what we have witnessed in summer after a prolonged hot and dry term. There is not space to multiply cases, which might be done to any extent. I will only mention one striking instance. The son of a distinguished practitioner of New York City, himself a physician, young and robust, never having suffered from any form of malaria, was called to Bloomingdale to assist in a surgical operation. On his way he was caught in a sudden cold shower, and his feet and legs got quite wet. It was necessary that he should wait with the patient two hours, but on his return home he changed his clothes. On the following day he was seized with a chill followed by fever, and for months he suffered from intermittent fever, and finally, after the failure of drugs to give permanent relief, he went to Europe, and recovered there. The converse of this proposition is also true; malarious fever will, after the failure of quinine and other supposed specifics against miasma, yield suddenly and permanently to nervous shock; for it is to this, I think, that we must attribute those recoveries which take place after swallowing some huge or some particularly disgusting dose, as a pint of vinegar, or live earth-worms taken in molasses, in the virtue of which the vulgar have such implicit belief, and perhaps also in part to the mental impression derived from this confidence. A medical friend of the writer, after having suffered more or less for years from malarious fever, and losing nearly all his hair, was cured by the advice of an old nurse, who told him to apply a wilted tobacco leaf over his abdomen. He had never used the weed in any form, and in a few hours he was more wilted than the leaf, but his old enemy was vanquished from that day. In fact, the disease commences in a morbific influence of one kind or another on the *nervous system*, and is cured by such remedies as act on this system, which have no specific influence on the blood and no *antidotal*

effect whatever. This morbific influence is often exerted on the cutaneous surface, and may be prevented, to a great extent, in a malarious region by wearing woollen next the skin, and by fires night and morning, especially when the diurnal range of temperature is unusually great, which preventives, the best we have, can not be said to exert any influence on marsh miasm. Quinine, when taken as a preventive, and it is a more or less reliable one, acts by fortifying the nervous system against depressing influences, and not through any supposed neutralizing effect on a specific poison circulating in the blood. So much for malaria, which has become an interesting topic in all parts of the country of late, in the parlor as well as in the doctor's office; and to which the writer regrets having felt himself obliged to devote so much space.

Rain-fall and other Hygrometric Conditions.—Very little space need be devoted to rain-fall, since it is now conceded that, in the first place, the mere *amount* of rain in the year, or in the winter, without a statement of its *distribution* over the months and even the days, is of no value; and, in the second place, that a certain amount of rain, if it falls rapidly, and does not recur at too short intervals, is beneficial in various ways, but especially as one of the best purifiers of the atmosphere, dissolving gases, and carrying down with it dust and animal and vegetable impurities. In some localities there is almost no precipitation of moisture (rain-fall), yet the air is constantly loaded with moisture almost to saturation.* With regard to the hygrometrical condition of the air of Florida, almost as erroneous ideas exist as

* "At Cannes," says Madden (Health Reports of Europe and Africa), "the amount of rain-fall is about five inches more than in London; but notwithstanding this, Cannes has incomparably a dryer climate than London; the number of rainy days in the former being 52, while in the latter it amounts to 78."

Catania, a noted health resort of Sicily, has 78 inches in the year, and yet there are fewer rainy or cloudy days there than in almost any of the noted European resorts, from the fact that almost all the rain falls in a month or a month and a half.

The extremes of precipitation are the deserts, where there is none at all, and on the Khasya Hills, 200 miles from the city of Bengal, where 600 inches fall annually. Cameron, Manual of Hygiene.

in the case of malaria. Dr. Walton's charts* give us some curious information, and indicate how little value is to be attached to the amount of rain-fall as a climatological fact. Thus Aiken, whose reputation is based principally on the dryness of its climate, has nearly one-third more rain in the winter and spring months than Palatka; while Alexandria, noted for an excessively moist climate, situated as it is "on a low, sandy peninsula between the sea and the wet swamp known as Lake Mareotis," has less than one-third as much rain as Aiken, and slightly less than half as much as Palatka. Mentone also has more rain than Palatka, and double the amount of St. Augustine. The tables of Dr. Baldwin, a most careful observer, give for the five months from November to March, inclusive, 21.3 rainy days out of 121 days, one day in six; though it did not rain all day on many of these days, such an occurrence being not very common in a semi-tropical climate, even in summer. "Whilst on the northern lakes," says Forry (op. cit.), the annual ratio of fair days is only 117, on the coast of Florida it is 250, and at Fort King" (now Ocala), "in the interior, it is 309." From twenty-five years' observations, says Dr. Baldwin, January has had an average of 20.3 clear days; February, 29.5; March, 20.4; April, 25; May, 22.1. For the whole year, 235 clear days. This was in Jacksonville.

Relative Humidity.—A much more important constituent of climate than rain-fall is the amount of moisture suspended in the air. When the air is *saturated* with moisture, we say it contains 100 per cent.; when one-half or one-quarter saturated, 50 or 25 per cent. But as air at one temperature is capable of holding more or less moisture than at other temperatures, in order to compare the humidity of different climates, we must take into account the temperature also; and when the calculation is made with reference to this, we call it the *relative* humidity. But, like the rain-fall, the tables of relative humidity seem to fail in giving a very correct idea of climatic humidity; and, as we shall presently see, it is desirable to take into account a

* A Comparison of European and American Climatic Resorts, with original Charts in Colors. George E. Walton, M. D. 1877.

variety of other indications. Thus, Dr. Geddings* gives a table comparing the relative humidity of three prominent Southern health stations. Aiken, 64.04; Asheville, N. C. (reported a dry climate), 70.10; Jacksonville, Florida, 69.72; according to Dr. Baldwin, 69.90. For my own observations, I had used for two winters Saussure's hygrometer, until I found, by comparison with those of others and from other indications, that it was not reliable. During the months of February, March, and April, 1878, using a Mason's psychrometer (wet and dry bulb) and comparing my observations with those of the signal officer at Jacksonville, the relative humidity for three months in 1878, is for that city 66.2; according to Dr. Baldwin's observations for several years, 62.6; while for Palatka it is 61.3. Palatka is undoubtedly a dryer climate than the stations on the river further north, fogs less frequent and less persistent. Dr. Geddings also gives a table comparing the humidity of Aiken with that of eight prominent European health resorts; from which table it appears that the humidity of Florida for the year is less than in five out of eight (including Mentone), while Aiken has less than six out of the eight. Almost all of our American resorts appear to have the advantage over their European competitors both as regards *relative* humidity and rain-fall. Recognizing, however, the difficulty in forming any correct judgment as to the comparative dryness of climates from these scientific data, Dr. Geddings proposes certain other tests, the most of which, it must be conceded, are pretty reliable; for instance, he says, the mean relative humidity of Aiken being only 64.04, that place, according to Vivenot's classification, would rank only as "moderately dry," but tested by the more popular signs which he gives, "it would be considered *very* dry." These signs are, of a *moist* climate, heavy dews, frequent fogs, melting of salt, vapor condensing on walls, steel and iron quickly rusting, rapid formation of mould, mosses flourishing, perspiration remaining long on the skin. Dr. Madden (op. cit.) says also: "The extreme humidity of this climate (Madeira) is shown by the impossibility of keeping steel instruments free from rust, or of preserving any musical instruments in tune, or any article of

* "Aiken as a Health Station." Charleston Medical Journal, 1877.

clothing, however carefully packed, from being injured by the dampness of the air, as well as by the exuberant tropical vegetation," etc. Examining the effects of moisture during the winter and spring months in this village, *dews* are frequently heavy. During my first winter here, however, dew did not commence to deposit until near twelve o'clock at night. During the past two winters it commenced earlier. *Fogs* are infrequent, and when they occur, are almost invariably dissipated by the sun at an early hour, before invalids have had their breakfast. Nearer the mouth of the river, they last longer, and are more frequent. *Salt never melts*, and never causes any inconvenience from dampness. I have not seen *vapor condensing* on the walls or stair-rails but once in three winters. I take no precaution against the *rusting of my steel instruments* in winter or spring, and they are free from rust in the spring. *Mould* seldom forms here, so far as I have observed. We must plead guilty to *mosses*. The *Tillandsia Usneoides*, or Spanish moss, which, as Dr. G. remarks, "adds so much to the solemn grandeur of our Southern forests," is admired as much as any of the novelties which a new-comer sees here. Undoubtedly, this does not grow in a dry atmosphere. But there seems to be something more than moisture which is conducive to its growth, since a tree standing by itself on high and dry ground and unprotected from the sun, is frequently covered by a more dense growth than many of the same species standing in a wet swamp, to which the rays of the sun have but slight access. As regards the deficient evaporation from the skin, a few notice it occasionally, but the majority do not, probably because there is generally more or less breeze. Dr. Geddings then gives the popular characteristics of a *dry* climate; but, as these are mainly the opposites of those of a moist climate, it is only necessary to allude to three—the "desiccation of meats and their slower decomposition"; "the certainty with which matches take fire even in unheated rooms"; and "the frisure of women's hair, the crimps and curls retaining their form for days." As regards the first test, it is a fact which I confess astonished me, that beef, when hung up in a current of air, will keep longer than in a like temperature at the North, and that venison will desiccate

this cause. We all know the serious effects produced on the lungs of artisans working at dusty trades.

Another topic deserves mention here; it cannot strictly be called a constituent of climate, but it has a great deal to do with the success of climatic treatment—the advantages which any particular location may present for *occupation* and *social enjoyment*, and without crowding the invalid class in too circumscribed a space. Patients must have some occupation and amusement, and the more the better. Brooding and idleness are always dangerous to invalids. Boating, shooting, fishing, riding, especially horseback, excursions, reading (but not too much of it) should be encouraged as far as the strength of the invalid will admit. Some will always find occupation and interest anywhere, while the great majority require to be induced, encouraged; and, of course, the more varied the means the better the chance of success. Thus, a residence on a river or lake, especially if they are thoroughfares for commerce and travel, is preferable, *caeteris paribus*, to inland localities, since the choice of sport and recreation is more varied. Patients should be taught to *exert themselves* to become *interested* in what is going on around them in their new residence.* Lanier, the poet, who has written a very interesting work on Florida, himself an invalid, forced to resort thither for his own safety, says, in giving the same advice: "The field of Florida in these matters" (agriculture and products) "is yet so new, so untried by the resources of modern agricultural improvement as to be full as fascinating, if one should get one's interest aroused in it, as it was in the old days when the Spaniards believed it to be full of gold and pearls." If the invalid cannot feel satisfied away from home, cannot keep his mind from brooding over his business interests or family affairs, he had better return to these, and avoid the unnecessary sacrifice of money and home comforts. In fact, before he leaves home "full note," says Williams

* In the case of Florida, I would advise the visitor, in order to become more interested in the industries, the occupations, the products, the sports of the State, to take the "Florida New Yorker," or the "Agriculturalist," the "Semi-Tropical Magazine," one of the best periodicals in the country of the kind, one or all of these, or the "Forest and Stream," and to read "Halleck's Camp Life in Florida."

(op. cit.), "must be taken of the patient's inclinations, means, and, above all, of his disposition and temperament; and exile must not be decreed to those who are incapable of making themselves happy under the changed conditions of life, or all our scientific grounds for a climatic decision may collapse like a house of cards."

The question of the sources of the *water supply* of a health resort is a most important one, and should always be ascertained, if possible, by physicians who give advice on the subject of change of air. More attention is now being devoted to sewage contamination on account of the many serious accidents occurring at northern watering-places within the last few years. But there are other sources of contamination, especially in southern resorts, which should receive more attention than has been accorded them. It is well known that water, contaminated by vegetable organic matter, as well as by minerals, as the salts of lime, produces dysentery and diarrhœa, but it is not so generally admitted that it may also give rise to malarious fevers. It is important that this fact should be generally recognized by those living in malarious localities, since *water* may contain the seeds of disease in winter as well as in summer. Want of space will only allow of allusion to a small number of arguments and facts which support this theory. As a general rule, people consider water which is transparent and has no unpleasant odor or taste safe. But physicians and scientists know that these are not reliable tests. All sorts of dangerous impurities may lurk in such water, while a comparatively repulsive-looking water may be wholesome to those accustomed to it, as the water of some rivers. When water contains a great deal of organic matter, as when it permeates a rich vegetable soil, it is brown or yellow, as the waters of the Ocklawaha and St. John's rivers, and may contain as much as 15 to 30 grains to a gallon. Water from marshes may contain from 75 to 100 grains. "It is a very general belief," says Parkes (op. cit.), "among the inhabitants of marshy countries that the water can produce fever. On making some inquiries of the inhabitants of the highly malarious plains of Troy during the Crimean war, I found the villagers universally stated that those who drank marsh water had fever at all

times of the year, while those who drank pure water only got fever during the late summer and autumnal months. The same belief is prevalent in the south of India, and in Western Candeisch, Canara, Balaghut, and Mysore, and in the deadly Wynaad district." "It is notorious," says Mr. Bettington, of the Madras Civil Service, "that the water produces fevers and affections of the spleen." He presents conclusive evidences of it. Parkes adduces similar evidence from various parts of France, and from what happens on ships furnished with river water."* He also states that the fevers produced by impure water are more fatal than others. It is not improbable that the malarious affections which have been so prevalent in the city of New York, in the older as well as in the newer districts, have been caused by the Croton water bringing the malarious germs from the sources of the streams; the severe droughts of summer and very small supply of snow in winter, characterizing the last eight or nine years, having caused, as has already been stated, an unusual development of malarial fever, rendering many localities, which had been proverbially healthy, just the reverse.

The water of many wells in Florida is clear and sweet, and therefore regarded as perfectly suitable for drinking and cooking, but a proper examination would show it to be entirely unfit, though less so than that from the shallow wells and brooks so frequently used by the country people. It was supposed that, by boring down to or through the coral rock underlying the State, a safe drinking-water would be obtained. This water, after a small amount of sulphuretted hydrogen gas has passed off, is beautiful and palatable, and far better than any well or spring water; but it gives, on chemical analysis, too large a percentage of salts and of organic matter to render it perfectly safe, though it is a very fair substitute for rain water when this cannot be obtained. The latter is the only *safe* water to use in Florida, and no doubt in large portions of many of our Southern States. Rain water should always be filtered. Kedzie's filter, animal charcoal, gravel, and sand, is generally used here. But an in-

* Practical Hygiene, London, 1866, p. 56.

genious person, who cannot afford this, can make one for himself. It should be borne in mind, however, that, after a time, the filter itself may become a source of contamination, and the charcoal should occasionally be removed, spread out, and exposed to the air.*

Food—the kind and quality, and the manner of its preparation—is a matter of no small importance to an invalid; and no climate, however suitable in other respects, is proper for him if he cannot obtain good and decently-cooked food. Many come to Florida with so little money that they must obtain board where the food is such that they cannot eat it, or if they do, it causes dyspepsia and an aggravation of their already existing disease. In this case I usually advise them to go home. Good food can be had anywhere in the State and at reasonable rates; so can wines, medicines, and all the comforts of life, which was not the case a few years ago. Perhaps one article ought to be excepted, for some localities, *milk*. But this will probably soon be obtainable in larger quantity and better quality, as cows need only to be fed with nutritious food to give good milk, whether they are in Florida or New York. The *amount* and *kind* of food, however, should be adapted to the great change of temperature to which the invalid has been subjected. This is seldom thought of, and when nature attempts to prompt him, her hints are misunderstood, and, after a few weeks' residence, he complains of loss of appetite for his accustomed articles of food; he cannot relish his usual quantity of beefsteak or roast beef twice a day; he becomes dissatisfied, and wishes a change. He should remember that less food and a different kind is required in a warm climate; less meat, and the lighter kinds, poultry, fish, eggs, vegetables, fruits. A want of observance of rules of diet induces "biliousness," dyspepsia, and perhaps diar-

* Palatka is supplied with large wooden cisterns, and there is an abundant supply of rain water for all purposes. The healthfulness, for which this place has always been noted, both in winter and summer, is no doubt largely due to this fact. It had, however, this reputation among our officers even during the Seminole war, and was on this account selected, in preference to posts higher up the river, for the site of a general hospital. The first purchase of a settler ought to be a cistern holding from 800 to 1,500 gallons, costing from thirty to fifty dollars.

rhœa, and as a physician is seldom consulted, except in severe cases, all this is attributed to the climate, and perhaps to malaria, and Florida has to bear the odium of this as she does of all the other imprudent acts of invalids and tourists.

A few words are necessary with regard to the *clothing* suitable for a Florida winter. It may be inferred, from what has been said with reference to variations in temperature from time to time, that a considerable variety of clothing should be at the command of the invalid. Thicker clothing is required in Florida than in New York at the same temperature. Linen clothes, for invalids at least, are seldom wanted. That which is suitable for moderate winter or early spring weather at the North will be best. One should have a thick and a thin overcoat. Flannels or merinoes should, of course, be worn at all times, and underclothes of different weight should be provided so as to be prepared for all emergencies.

Of the diseases which may be benefited by change of climate, and especially by Florida climate, only one has yet been mentioned—pulmonary consumption, because the question of change of climate arises far more frequently with reference to this than any other, and yet this powerful therapeutic agent is more successful in the cure of almost any other disease than this. It would be otherwise, however, were the cases properly selected, if the remedy were resorted to in the early stages of the disease, if the climatic change were aided, as all writers urge that it should be, by other therapeutic measures, and by judicious advice as to the mode of life suited to each particular case, and to the adopted climate.

It is notorious that large numbers are annually sent to the South who are entirely unfit to leave home on account of the advanced state of the disease or extreme debility. By what symptoms, then, or conditions of the patient are we to be influenced in deciding the important question as to whether he should or should not leave his home? Some physicians are apparently guided by the local condition, the amount of disease existing in the lung; some by the general aspect and symptoms presented; some by both; while others, it is to be regretted, seem to be guided by no principle at all, allowing their patients to

follow, to a great extent, their own inclination, to drift about according to their own caprice, or the notions of their family, or of friends who have been benefited perhaps by some particular climate which happened to suit their case. Some seem not to have the nerve, the moral courage to announce to the hopeful friends that the case is hopeless, and that it would be cruel to banish the patient from home; and thus so many distressing cases fall into the hands of those of us whose lot it is to minister to the last sufferings, mental and physical, of those whose fate it is to die away from the comforts of home and friends, and thus is the reputation of climatic treatment depreciated. A good deal of unnecessary stress is, it seems to me, laid on the fact of the disease being in the so-called "third stage" as a condition unsuited for change, especially a change to a warm, sedative climate. It has prevented many from availing themselves of the advantages of change who might have been much benefited; the third stage, or stage of softening, being often the curative means which nature adopts to get rid of dangerous deposits in the lungs. The *extent* or *condition* of the cavity, or of the *foyer purulent*, should be carefully determined. A large cavity, or one not circumscribed by a limiting membrane, or invading the lung in different directions, or accompanied by an unfavorable condition of the general health, would contraïndicate change. But the simple fact that softening has commenced, that a cavity exists, or even more than one, that the third stage has arrived, should not, *per se*, condemn a patient. All physicians who have made many autopsies, or who have dissected extensively, must have met with not a few instances of the healing of cavities in the lung, or in both lungs. H. Bennet observed numerous instances of the healing of the cavities in the lungs of old women who died at the Salpétrière in Paris. MM. Ferrus and Cruveilhier noticed the same fact in the Salpétrière and Bicètre in the bodies of both sexes. While "M. Beau states that 157 out of 160 who died in his wards in Salpétrière had cicatrices in the apex of one or both lungs." M. Prus found similar traces. There are certain cases of phthisis which may be recognized at a glance as unsuitable for change, whatever may be the condition of the lungs; in

fact, when physical examination reveals but trifling change, as where there is excessive emaciation, a serious alteration of the composition of the blood, as indicated by a peculiar pallor, failure of digestion and nutrition, diarrhœa, hectic fever, frequent pulse, profuse expectoration, exhausting sweats, accelerated breathing, inability to exercise to any extent. It is not necessary that *all* this formidable array of symptoms should be present to warrant an unfavorable opinion on the part of the physician as regards change of climate. The most superficial examination is sufficient to enable one to judge of the future of these cases. Numbers of these invalids are, nevertheless, allowed to go, let us not say are sent, hundreds of miles from home. This is one reason why climatic treatment so often fails. Another prominent cause of failure is the advice commonly, almost universally, given by physicians to "*trust to the climate*," to "avoid drugs and doctors." An immense number of drugs have, doubtless, already been found useless, perhaps worse than useless, and it is natural that the patient should be told to avoid them. But a remedy which, in one climate, has proved valueless, might be of decided value in another and under changed circumstances. A mere change of air and scene may, and often does, prove all that is necessary in a few cases of incipient disease; but, as a very general rule, invalids require more or less medication at one time or another during the winter. Complications, some of which may be incident to the change of climate, food, water, etc., and especially to the fatigue and excitement of the journey, require attention. Invalids are notoriously careless and reckless, and require to have some one at hand with authority to check them. All writers on climate have warned against this proclivity to trust too much to climate. Sir James Clark says: "In the first place, I would strongly advise every person who goes abroad for the recovery of his health, whatever may be his disease, or to what climate soever he may go, to consider the change as placing him merely in a more favorable situation for the removal of his disease; in fact, to bear strictly in mind that the beneficial influence of sailing and of climate requires to be aided by such a dietetic regimen and general mode of living, and *by such remedial measures as would have*

been requisite in his case had he remained in his own country. All the circumstances requiring attention from the invalid at home should be equally attended to abroad. If, in some things, greater latitude may be allowed, others will demand even a more rigid attention. It is, in truth, only by a due regard to all these circumstances that the powers of the constitution can be enabled to throw off, or even materially mitigate, in the best climate, a disease of long standing." "It was, indeed, a matter of surprise to me, during my residence abroad, to observe the manner in which many invalids seemed to lose sight of the object for which they left their own country—*the recovery of their health.*" "The more common and more injurious deviations from that system of living which an invalid ought to adopt consist in errors of diet, exposure to cold, over-fatigue, and excitement in what is called 'sight-seeing,' frequenting crowded and over-heated rooms, keeping late hours," etc.

Williams (op. cit.) remarks: "Climate is only one portion of the system of attack which we organize against the dread foe which decimates our population, and would be worth little if not combined with medicine and hygiene, and a determined will to wrestle bravely against the home-thrusting enemy." Dr. T. G. Horn (Trans. Colorado State Med. Soc.) thus discourses: "Invalids, as a class, are generally careless, self-willed, and unreasonable. Many naturally so; more made so by instructions given them by their physicians East telling them almost invariably that they will not need to consult a physician here, but 'go into the mountains,' 'live out of doors,' etc. So, with his pocket full of prescriptions from home, the poor sufferer rushes madly into this altitude, and without proper medical advice, soon rests in his grave." The following remarks of Forry, than whom no one is better qualified to give advice in this connection, are so apposite that I quote them at length: "Let not the invalid, however, trust too much to change of climate. Unfortunately for the character of the remedy, it has been recommended indiscriminately and without proper consideration. It has been too often resorted to as a last resource or a forlorn hope; or, in cases susceptible of alleviation or permanent cure, it has been wholly misapplied. One person is hurried from his

native land with the certainty of having his sufferings increased and his life shortened, instead of being allowed to die in peace in his own family; while another, who might derive much advantage from the change, is sent abroad wholly uninstructed in regard to the selection of a proper residence or ignorant of the various circumstances by which alone the most suitable climate can be rendered beneficial. It is one of our most powerful remedial agents, and one, too, which, in many cases, will admit of no substitute. But much permanent benefit will result neither from travelling, nor change of climate, nor their combined influence, unless the invalid adheres strictly to such regimen as his case may require. This remedy—change of climate—must be considered in the light of all other therapeutic means, and to insure its proper action, it is requisite that the necessary conditions be observed. The patient should, in a measure, regard the change of climate as merely placing him in a situation more favorable for the operation of the remedies demanded by his disease."

Another cause of failure is this: patients with only a moderate amount of disease often improve so much in one winter that they, and sometimes also their physicians, yielding to a natural desire of the invalids to remain at home, permit them to do so during the second or third winter. The consequence is that a catarrh, or pneumonia, or some complication incident to the climate and to overwork, or possibly only the devitalizing influence of a cold and damp winter, causes a relapse which is fatal, or insures a travel over a still longer road of invalidism than before. No matter how slight the evidences of phthisis in a young person may be, especially if there be hereditary predisposition, he should be fully impressed with the idea that his change of base must not be for one or two seasons, but probably for several, however flattering may be the results of the first or second season.

It has been deemed advisable to introduce the above cautions, which every prominent writer on this subject has felt constrained to employ, because such incalculable harm has resulted from the prevailing habit among medical men of advising their patients against availing themselves of that which is absolutely

necessary to the success of climatic change in the great majority of instances—proper medical supervision and prescription. In the first place, patients leaving home in a feeble condition, travel rapidly down to Florida, not resting, as they should, on the way, and arrive more or less exhausted by the journey, and then, instead of perfect rest for a day or two at least, and in bed if necessary, they drag themselves about, and sometimes do not get thoroughly rested for weeks. Sometimes from a too sudden change from a very cold to a warm temperature, gastric or hepatic troubles arise, and require treatment. Some patients with hectic fever, with a temperature ranging from 103° to 104°, pursue the same course, struggling to make a show of strength, and determined not to give up, when they should be in bed and taking the proper remedies. Sometimes a harassing cough, contracted perhaps from the exposure of their journey, or on some pleasure trip, or in sight-seeing, drives away their own sleep and that of their neighbors night after night, yet they are deluded into asserting in the morning that they have had a "pretty good night," their whole aspect denying the assertion. Profuse and exhausting sweats are allowed to go on unchecked by remedies, or are tampered with as are their other complications, not infrequently by domestic remedies, or the advice of sympathizing acquaintances. Dyspeptic symptoms often arise from injudicious eating, or perhaps as a consequence of their disease, and interfere with nutrition during the whole winter perhaps. Loss of appetite, especially during the latter part of the winter often troubles the invalid. Diarrhœa is a not infrequent complication, which is generally neglected until it becomes a serious matter. These are a few of the many exigencies which may require the attention of a judicious physician, and of one on the spot. Dr. J. R. Nichols, in his recent pamphlet (Essay, read before the Essex North Massachusetts Medical Society, May, 1878), truly says: "After you have reached Florida, you can no longer safely rely upon any advice you may obtain from your home physician in response to your representations to him by letter. If you need advice, seek it of some of the very able, cultivated, experienced resident physicians where you may stay."

The occurrence of these various complications, and the want of proper advice as to their management, lead to another prevalent and dangerous habit of invalids, which, more than any other, perhaps, opposes their efforts and sacrifices in search of health. Experiencing aggravation of some of their symptoms, or the advent of new annoyances, they arrive at the conclusion that they have not found the proper location, and seek some other, to go through a similar experience, perhaps; thus they go on, wasting the winter in experiments, and finally return home in the spring no better, probably worse. Whereas, a little judicious medical advice or caution, in the first instance, might have put them on the road to the melioration or cure of their complaint.

Among the diseases for which a climate like that of Florida is particularly suitable may be enumerated *Bright's disease* in its earlier stages; for, as in the case of tubercular phthisis, it is worse than useless to send the very advanced cases. *Throat* and *bronchial affections*—these usually recover rapidly. But now and then a case of "sore throat" is sent as a curable one, when there is tubercular ulceration of the epiglottis, consequent on disease of the lungs, of which the patient has been kept in ignorance. These are, of course, hopeless, and very much damage the reputation of climatic treatment; cases of *uncured pneumonia*, consolidation, which has survived the usual treatment and has left the invalid feeble, short of breath, with cough, loss of appetite, etc. Dr. Bizzell (Trans. of Med. Asso. of Alabama) says: "Such cases recover almost magically in the warm, mild air of Florida"; children of *strumous or tubercular diathesis*, particularly those convalescing from *measles*, *scarlatina*, or *whooping-cough; rheumatism and neuralgia.* It may be thought singular that the former should be decidedly benefited here, owing to the amount of moisture supposed to exist in the air. But the *fact* is that, without any medication, it does yield, and sometimes rapidly. This may be added to the evidence already adduced in my first letter to prove that the climate is not so moist as has been represented; that form of *dyspepsia*, which may be called *nervous*, and which is becoming more and more common every year, as the nervous system is more and more

overtaxed, and which often promptly yields to the *bromides*, is alleviated in Florida; many of the *nervous and neuralgic symptoms attending uterine disease*, or surviving its successful treatment (as far as local lesions are concerned), do well. Patients convalescing unsatisfactorily, in a cold climate, from almost any exhausting disease, even from malarial affections (witness the writer's own case), will find a change to a temperature which will enable them to derive the benefit, through a long winter, of constant fresh, open air, extremely beneficial. Very *old* persons without any disease will have their lives prolonged and rendered more comfortable by a winter residence in the mild, genial air of Florida; especially old *men*, who suffer from *bladder and prostatic troubles*. "Lastly, Florida offers a haven of rest and quiet for that condition which is unfortunately becoming so prevalent among the restless, driving denizens of our Northern towns and cities, which comes under the comprehensive designation of *nervous prostration;* what Handfield Jones terms *cerebral paresis*, and which was thus described by James Johnson nearly fifty years ago: 'There is a condition of body intermediate between sickness and health, but much nearer the former than the latter, to which I am unable to give a satisfactory name. It is daily and hourly felt by tens of thousands in this metropolis (London) and throughout the empire; but I do not know that it has ever been described. It is not curable by physic, though I apprehend it makes much work for the doctors ultimately, if not for the undertakers. It is that WEAR AND TEAR of the living machine, mental and corporeal, which results from over-strenuous labor or exertion of the intellectual faculties rather than of the corporeal powers, conducted in anxiety of mind and bad air.' For this cerebral consumption, as we may justly term it, Florida affords as healing a balm as for the pulmonary variety."*

These cases are met with every year in increasing numbers in men of great business capacity and untiring energy and industry, in all kinds of business and in all the professions; men ambitious of wealth or distinction, often goaded on by the neces-

* Florida as a Health Resort. By F. D. Lente, N. Y. Med. Jour., Nov. 18, 1876.

sity of supplying the extravagant wants of large and expensive families; heads of our great corporations, railways, trust companies, insurance companies, etc.; men not content with the management and responsibility of one such organization, but often at the head of several, whose mental powers have been at their utmost tension, with very rare intervals of relaxation, for years. Sad it is to witness the wreck of such minds. In the light of this experience, we are almost disposed to regard the invention of the telegraph, and especially of the ocean telegraph, which enables us and forces us to compress so much business into so small a space of time, as a very equivocal blessing. The facilities for accomplishing, and the inducements for undertaking, increased work and responsibility, thus multiplying year by year, it does not require a prophet to predict a yearly increase of nervous diseases and cerebral wrecks if our people generally, our educated and mercantile classes, are not aroused to the necessity for a decided reform in their reckless career. Dr. Nichols says, in his recent pamphlet (Essay read before the Essex North Mass. Med. Soc., May, 1878): "Without further remark, we will say now, that for that class of ailments depending upon abnormal nerve functions, no climate is better calculated to afford relief than that of Florida. The poor, broken-down man of business, the nervous wife and mother, wearied and worn with household cares and duties, will find in this delightful air a balm well calculated to restore nerve action to its healthy conditions. The rest, the mental and physical rest, which comes even during a brief residence in Florida is, in our view, one of the most remarkable results of its climatic influence." "The best possible medicine for weak nerves is out-of-door life in a climate not subject to violent changes; such a climate is afforded by Florida in winter."

These conditions of the nervous system are not only of themselves of the most serious import, but still more so when we consider that they are very frequently only the forerunner of phthisis. This disease begins usually in impairment of nerve power, with exhaustion from overwork, mental or physical. "In fact," says Edwin Lee (Fiske Fund Prize Essay), "the destroyed illusions, the deceived hopes of the realizations of expectations too often exaggerated by vicious systems of education,

the difficulties and anxieties which so often beset the path of life, etc., may well be regarded as mainly instrumental in the production of organic diseases, and especially of *pulmonary consumption.*"

It is the duty of the physician to be watchful of the development of such cases, especially in phthisical families. These symptoms, of what has been termed the pre-tubercular stage, are generally quite obvious—failing health, loss of appetite, of interest in events or surroundings, dyspepsia, lassitude, sometimes anæmia, but no *physical signs.* These are the cases for *cure* by change of climate. "The number of cases like these," says Dr. Geddings (op. cit.), "is simply enormous, and the physician who, forgetting that his mission is to avert disease, as well as to cure it, sounds no note of warning, is not only derelict in duty, but guilty of negligence, for which the term criminal is none too harsh. Year by year cases come under the writer's observation, where neglect on the part of the physician to give this warning, or its disregard when given, has caused a sacrifice of human life which might have been prevented."

We have said that patients must not *rely* too much on climate; neither must they *expect* too much. This also has led to frequent disappointment and a failure to appreciate the benefit of climatic change. A decidedly consumptive invalid comes to Florida, and because he has not regained his health and strength in the spring, he concludes that the change has done him little or no good. Perhaps he feels little or no better. Yet he does not know how much *worse* he might have been had he remained at home. He comes to Florida to avoid dangers to which a northern climate would have exposed him, and if he gains nothing more than the escape from these dangers, catarrhal troubles, pneumonia, pleurisy, bronchitis, etc., he has been well paid for his sacrifice.

A medical invalid thus philosophizes on the subject: "One chief object in spending the winter in Florida is this: a man with chronic disease should be satisfied if, during the winter, he merely keeps his enemy at bay. He is content if his disease, his enemy, makes no progress there, while, during the spring and summer, he tries to get well. In this the climate of Florida helps him; it is the best place in which the invalid can put his

disease into winter quarters previous to undertaking the summer campaign. And if life is to be a constant retreat, a running fight with and from death, this is a strong fortress into which he may retire, and from which he may often set his enemy at defiance."

With regard to the proper *time* for going to Florida, one may go from the first to the middle of November if his condition requires so early a retreat from inclement weather. If, however, he has only a limited time at his disposal, he had better wait until the first of February. The oranges are then in perfection, and the weather also. If he does not wish to spend the whole of a long winter and spring in Florida, and cannot remain at the North, or if he pines for a change, he may go up to Aiken, or he may stop at Aiken in the early part of the winter. October is delightful there, and there is usually no cold to interfere with an invalid until Christmas, and often later. "This," says Dr. Geddings (op. cit.), "is undoubtedly the finest portion of the year, the air being just cold enough to act as a tonic without chilling, or in any way adding to the discomfort of even the most sensitive invalid." Aiken has also one of the finest hotels in the southern country.

When shall one leave Florida on his return north?—is a more important question. The warning has been repeated again and again by all writers on climate: "Don't get home too early." But still the fatal mistake continues to be made, and the sacrifices and benefits of a whole winter are often thrown away by a premature return in the spring. Quite a long spell of warm and beautiful weather in April, or even in March, which often characterizes our treacherous northern climate, when the grass becomes green and the early flowers put forth their petals, and the birds begin to sing, beguiles the invalid or his friends, who long to see him home among them again, into the belief that an early summer is at hand, and he hastens away from his safe retreat, to be greeted, on his arrival, with a cold and chilling blast, not seldom with sleet or snow, and to experience perhaps weeks of weather more dangerous than that of mid-winter. This the writer experienced even in May last. Better remain at home all winter than return too early in spring.

PALATKA, FLORIDA.

Note on Sea-Sickness.—The question whether it is preferable to travel by land or by sea naturally presents itself to the invalid and the tourist. Railways are usually preferred, many fearing to face the dangers of the sea and the horrors of sea-sickness. As regards danger to life, that of the sea is certainly not greater, according to statistics, than by land. There are many advantages of travel by sea. The fatigue is less; the comfort is usually greater; the danger of taking cold and of exposure generally is less, or precautions against it are more under the control of the individual. The voyage is almost always beneficial to the consumptive or bronchitic invalid; the cough is for the time arrested. Even if the invalid suffers from sickness, it is only a temporary suffering, and does not increase his disease. If he is so feeble as to render a sea voyage dangerous, he is unfit to travel at all, and should remain at home.

As regards *sea-sickness*, this may be in many cases entirely prevented; in others promptly cured, or greatly mitigated. I have elsewhere* written at considerable length of the treatment of nausea and vomiting from various causes. For the *prevention* of sea-sickness I employ bromide of potassium or calcium in full doses, half a drachm, three times a day, for about three days before the day of sailing, or enough to get the system fully under the influence of the drug at that date, as evidenced by a feeling of pleasant drowsiness. I keep this influence up by one, two or three doses a day after sailing, especially if the sea is high. Some persons prevent sickness by wearing Jobard's belt buckled as tightly around the waist or pit of the stomach as can be borne with comfort. Ladies can bear it better than gentlemen. These can be had at Tiemann & Co.'s, 67 Chatham street, New York. The invalid should, if the weather permit, keep on deck, and, if threatened with sickness, in the recumbent posture, and take the meals on deck. If he takes his meals in the saloon, he should not linger a moment after he has finished a moderate meal of *plain* food, but go in the open air, and lie down if threatened with nausea.

* Treatment of Vomiting by Electricity. Archives of Electrology and Neurology, 1874. New York Medical Journal, November, 1876. Medical Record, June 22, 1878.

Among the numerous *cures*, I know of none equal to electricity. A person can get a small, inexpensive Gaiffe battery for from five to ten dollars, which requires no destructive acids to run it, which any one may learn to apply moderately well very soon. A flat sponge *moistened* well or a wet napkin should be *wrapped around* the brass cylinder electrodes, not *inserted into* them, so as to furnish a large surface. One of these should be placed on the epigastrium, the other opposite, over the spine or *solar plexus*, and the latter, during half the time, over the seventh cervical vertebra. The electricity may be continued for half an hour or an hour in bad cases, only strong enough to give a pleasant sensation. Apomorphia in very minute doses (the homœopathic triturations furnish the most convenient form) is well worthy of trial. For sleeplessness associated with sea-sickness, chloral hydrate may be taken (in a wafer to prevent nausea) in doses of ten to fifteen grains. A stop-cock corkscrew may be put into a bottle of dry champagne; this kept in ice, and small doses taken every half hour or so, especially in debilitated subjects. By strictly observing the above precautions and remedial measures, sea-sickness may be prevented, or cured in most cases, not in all. Those who get sick upon coming in sight of the steamer, or *thinking* of the voyage, had better take to the railway.

PALMA SOLA, AUGUST 1, 1884.

THE YOUNGEST AND LARGEST TOWN IN FLORIDA.

ITS LOCATION AND ADVANTAGES OF CLIMATE, GEOGRAPHICAL POSITION SOCIETY AND MANUFACTURING INTERESTS, AS ATTRACTIONS FOR THE TOURIST, LAND HUNTER, FLORIDA SETTLER, SPECULATOR, AND FOR THOSE RESIDENTS GENERALLY OF THE FRIGID ZONE NORTH OF FLORIDA WHO FOR THE ATTAINMENT OF GREATER HAPPINESS REALLY SHOULD LIVE HERE.

BY A RESIDENT WHOSE EXPERIENCE DATES FROM AUGUST 16, 1868, TO THE PRESENT TIME.

The traveler by water, coming south in one of the vessels of the Tampa Steamship Company from Cedar Keys, as he enters the fine harbor of Tampa Bay, passing Egmont Lighthouse, sees ahead across nine miles of blue water a cluster of white houses, apparently upon the southeast shore of Tampa Bay, and is told by the ever-present tourist, who has been there before and is pining to give information, that that is *Palma Sola*, the City of the "Lone Palm." From Egmont Lighthouse it appears to be upon the shore of the bay, but as the steamer plows her way through the clear water a large harbor or estuary opens out before him, and it becomes apparent that this city by the Gulf is located upon a body of water, that for beauty of shore line and perfection as a harbor has no equal in Florida. Two miles from the wharves and warehouses now in plain sight the steamer passes the bar buoy, when again our well informed tourist says, "Uncle Sam has just expended $12,000 in dredging this bar,

and this steamer has 12½ feet of water under her at low tide, where formerly there was but nine, making this the deepest harbor channel on the Gulf coast between Pensacola and Key West." Right again, Mr. Tourist, and as our vessel progresses up the Manatee River, or, more properly, Bay, and the eye takes in its mile and more of width and four miles of length, and is told of its uniform depth of three fathoms, the same idea strikes the observer that is striking the projectors of all the railroads to the Gulf Coast, namely, that it is *the* harbor for terminal facilities for their roads. An idea that ere another summer's showers shall have passed over its sparkling waters will result in the building of wharves and warehouses on its shores for the business of the road, that from here sends its passengers by steamers to Key West and Havana.

"Through from New York to Cuba in four and one-half days." Manatee Bay, it should properly be called, for from its mouth as defined by the west end of Snead's Island on the north and Shaw's Point on its south shore to a point seven miles east, the harbor maintains a uniform width of about a mile and a quarter, widening out to a mile and one-half in front of Palma Sola. The tides ebb and flow, the water being pure salt Gulf water, with no fresh water currents or influences at any season of the year. Above and east of this point, seven miles from the mouth, this bay begins to assume some of the characteristics of a fresh water river, rush grass islands, mangrove bushes, etc. Scattered along at about even intervals on the shore are, first, Palma Sola, next Braidentown, then Manatee and Palmetto, all having suitable steamboat landings—Fogartysville and Ellentown, two smaller towns, not being so distinguished as yet. Like the others, however, "great in the future," their inhabitants dream of a business that shall build wharves and draw the commercial navies of the world to their doors. "Palma Sola passengers claim their baggage." The steamer is fast to a long wharf covered by a one-story warehouse and store, entering which we find the most varied assortment of merchandise conceivable. Ship stores, dry goods, furniture, drugs, household utensils, hats and clothing, groceries, jewelry—an imitation in a moderate way of Macy's big Sixth Avenue store. Here the dwellers in Palma Sola and the surrounding country supply their wants, it being a frequently repeated assertion of the proprietors, who also own the saw and

planing mills adjacent, that they build houses and furnish them complete, to the cradle that rocks the baby and the condensed milk that nourishes it, for be it known that in this country with its thousands of cattle ranging the woods at large, milk, the genuine fresh article, is not to be had to drink. A few hundred feet from the wharf and warehouses on a high bluff overlooking Manatee Bay to the east, and across Tampa Bay and the blue waters of the Gulf of Mexico to the west, stands a comfortable but comparatively small hotel, with breezy porches and an air of home comfort about its exterior that is fully realized by the traveler when his room is assigned him, and the neat new furniture and perfect spring beds have for a day or a night been his. Clustered about the hotel are a number of cottages, varying in size to suit the wants of their occupants, most of whom are employees of the mills and other enterprises of the present owners of Palma Sola. So much for a general description of the present appearance of the town that is called on the title page the youngest and largest town in the State. Youngest at this date, being chartered as a town August 1st, 1884, and largest as it contains within its corporate limits over twenty square miles, or a little over 13,000 acres, embracing within its limits Palma Sola Bay and Pereco Islands, and having a shore line on Manatee, Palma Sola and Sarasota Bays over twenty-two miles long.

Its northern boundary, the south bank of Manatee Bay, is in latitude 27° 31′ north and longitude 82° 37′ west.

Referring to the map which accompanies this pamphlet it will be seen that the Palma Sola Company owns the entire peninsula between Sarasota Bay and the Manatee River, of which peninsula it can be safely said that no portion of the State of Florida can be found north of Charlotte Harbor, which is so entirely exempt from the destructive action of frost as this. Looking at the general map of the State, it will be seen that it projects well out from the otherwise straight shore line into the Gulf, and its perfect surrounding of deep salt water bays, whose temperature is always high, gives it a protection from cold winds that is unequaled. Referring to Lieut. Maury's charts of ocean currents, it will be seen that the great Yucatan current, which pours its flood of hot equatorial waters into the Gulf Stream, circles and bends close into the shore at Tampa Bay, diffusing its warm vapors over this favored section. Across, from bay

to bay, upon the east boundary of the corporation, the company has built an impregnable barbed wire fence, which is proof against hogs and cattle, and by an action at the first meeting of its Town Council it is made a misdemeanor and cause of action for damages for a resident of the town to allow stock of any kind to run at large within its limits.

Thus the *town* fences *out* cattle, and each settler is saved the very great and unsatisfactory expense of barricading his individual grounds. The wisdom and value of this general fence is very strikingly endorsed by the statistics of the last census, which shows that the value of fences in our entire State are eight times the value of the stock, and that the cost of maintaining them is something more than double the value of the stock yearly.

Here a little over five and one-half miles of fence extended into deep water in both bays protects with the aid of the ordinance over twenty square miles of land, the subdivisions of which have been carefully and accurately marked by the company with permanent stones at the corners, precluding the possibility of future disputes as to boundaries.

The patents for these lands, having come direct from the State and United States Governments to the present owners by direct cash purchase will be sufficient evidence to the careful buyer that his title will be good. In this part of Florida none of the Spanish grants, which are a fruitful source of litigation on the Eastern Coast, were ever made.

Before buying land and building a home, the settler asks, What can I do to make a living? and, looking around, he finds a large number of people employed in milling with room for many more at fair compensation, opportunities for carrying on merchandise business, good openings for every trade and profession, and, if his tastes are for a "Life on the Ocean Wave," employment is offered in all its occupations. Within the past year a new enterprise has had birth here that now promises to grow to giant proportions. With the establishment of an ice-house it became possible to save and send the fish, with which the waters are literally alive, to the great cities of the South and North. The business was at once opened, and at the close of the first season the ice-packers had profitably shipped many tons of mullet, redfish, sheepshead and pompano.

At this date large packing-houses are in course of construction for the accommodation of a business that, during the coming season, will figure up towards $100,000.

Within forty miles of Palma Sola are the great sponge banks of Florida, from which hundreds of thousands of dollars' worth are annually taken and shipped to New York. The rapid development of the resources of all new countries calls for an unusual amount of hard labor, and it is so particularly the case here that no assurance need be given to any that want work that they can find plenty to do, Up to this date the great difficulty has been with every business enterprise to find labor enough to carry it on.

In answer to the natural question of the intending settler: "What will it cost to get there, and how shall I go?" the following rate sheets are given from New York, and are the same for the Mallory Line, via Fernandina, and the Ocean Steamship Company, via Savannah. By the latter company the traveler will be ticketed via Jacksonville and the St. John's River to Sanford, thence by Tampa and boat to Palma Sola.

PASSENGER RATES BETWEEN NEW YORK AND POINTS ON GULF COAST.

To or From	Straight.		Excursion.
	Cabin.	St'age.	Cabin.
Bayport	31 00	19 25	51 00
Anclote	31 50	19 75	52 00
Clear Water	33 50	21 25	54 00
Braidentown, Tampa, Manatee	36 50	23 25	61 00
Punta Rassa	40 50	24 25	65 00
Palma Sola	36 50	23 25	61 00

Children between 4 and 12 years of age half fare. 150 lbs. baggage free to each adult passenger. Extra baggage 75 cents per 100 lbs. between Fernandina and New York. Usual rates on railroads.

On his household goods and gods the following rate will apply by either line.

THE MALLORY LINES or OCEAN S. S. CO. and SAVANNAH, F. and WESTERN R.R.	RATES PER ONE HUNDRED POUNDS.												PER BBL.		
Rates from New York to	First Class.	Second Class.	Third Class.	Fourth Class.	Fifth Class.	Sixth Class.	Class A, Ties & Baggage.	Class B, bacon pkd in any quantity, bulk meat, C.L. owner's risk of spoiling.	Class C—Flour in Sacks	Class D—Grain, any quantity, Hay, C. L.	Class E, Ale and Beer in wood, owner's risk of leakage & fermentation.	Class H, whisky in wood, value limited to 75 cts. per gal. per 100 lbs.	Class F, Flour Grits and Hominy, in bbls.	Class G, Beef and Pork, salted, in barrels.	Potatoes and other Vegetables.
	1	2	3	4	5	6	A	B	C	D	E	H	F	G	Veg
Palma Sola.....	1 53	131	1 18	75	60	50	75	50	60	45	75	75	90	1 35	90

The following rate sheet gives the cost of getting productions back to the great Northern markets, and will be considered low enough surely:

THROUGH RATES ON VEGETABLES, VIA THE ATLANTIC COAST LINE, IN EFFECT MARCH 25TH, 1884.

FROM	TO	Baltimore. Washington.		Philadelphia.		New York.		Boston.	Providence.	Richmond. Petersburg. Portsmouth.	
		Per Box	Per Bbl.	Per Box	Per Bbl.	Per Box	Per Bbl.	Per Box	Per Bbl.	Per Box	Per Bbl.
Tampa and Palma Sola.....		60	1 10	60	1 10	60	1 10	65	1 25	60	1 10

So much for the expense of reaching Palma Sola. The land for an orange grove can be bought at from $5.00 per acre to $25.00, according to location, the value being varied more by position with regard to the business centre than by the varied qualities of the soil. The rich hammock lands, suitable for the production of early vegetables for the Northern markets, range much higher in values, $20 per acre being about the lowest price at which any could now be bought, and $50 has been paid. These prices may sound high for

wild lands, upon which an expenditure of from $30 to $50 more per acre must be made before they can be cultivated, but a comparison of their net yield with that of the lands of the Northern wheat or corn grower shows that here $200 is taken from an acre where there the average yield may be safely placed at $14. These figures leave nothing more to be said.

The cost of living may be put down at the same figure as in any of the medium sized cities, *less* the expense of rents, fuel, fine clothing and amusements; however large or small a part of the income these items may appropriate can be readily saved at Palma Sola.

The mild climate makes an expensive house unnecessary, fuel is to be had for the expense only of gathering it, and thus far the necessity has not arisen for expenditures that in the city resident's expense account book should properly appear as "paid for keeping up appearances."

Looking the whole field over it will be found that living expenses may be kept very low, while income from the various occupations that may be engaged in can be made large. (That depending here, as elsewhere, upon the individual). No more favorable conditions for success can be found anywhere. The Palma Sola Land Company, owning the entire peninsula, as described on the fifth page, is advertising its lands extensively and offering every possible inducement to intending settlers to locate here. To this end acres of its lands have not been advanced to keep pace with the prices of other adjacent lands that are being sold much higher.

It is the plan of the Company to reinvest the proceeds of all sales of land for some years in the improvement of avenues and streets, planting strawberries, making orange groves, etc.

The Company will also contract with non-residents for the clearing of lands, planting orange groves, and the care of them so long as is necessary. A strong colony from Taunton, Mass., is now improving a large tract in this way under the Company's care, and investors in orange groves, who from any cause cannot give their personal attention to the business, will find this a reliable means of establishing it.

As a possible aid to the selection of an occupation here the following article on Tropical Fruits may prove of interest.

TROPICAL FRUITS IN FLORIDA.

This excellent and reliable little treatise on this subject was prepared by the Florida Land and Improvement Co., and answers so many of the questions put by correspondents that it has been included in this pamphlet. All of the fruits named in it find a place adapted to their growth in Palma Sola, untroubled by the light frosts that sometimes injure them in localities only a little further north. The infinite value of such a location over another where the same conditions do not exist, and where the fruit grower sees the result of his labor of years destroyed in a night, cannot be over-estimated, the relation of the figures being as nought (or worse) to one. This matter of location cannot be too carefully considered by the Florida settler, for on it depends entirely his success or failure. Money spent in carefully and intelligently looking the State over is well expended and results most frequently in the conviction that the Gulf Coast is superior in climate, character of lands, coast harbors and future prospects. This conclusion being reached, the choice of location is narrowed down from the great area of a great state to the narrow limits of the Coast line, Following that line down to Tampa Bay, and particularly to the Manatee River, more conditions are found favorable to certain success in fruit growing and the production of early vegetables than are to be found elsewhere. The facts and figures as given by Dr. Levis in this book are conclusive affirmative evidence for this statement.

ORANGE-CULTURE.

The subject of orange-growing in Florida is one on which we often have inquiries addressed to us, and we therefore give additional facts on the much-debated question of the cost and

profit of orange-growing, for which the United States Department of Agriculture is authority. From barely nothing, in a commercial sense, at the close of the war, the business has grown to be worth over $1,000,000. Measured by the progress of the past, it is destined to become, in a short time, one of the leading industries of the State. Last year there were exported at least 15,000,000 oranges. The business so far has been very successful, and is daily inviting more capital and enterprise. There are already $10,000,000 invested in orange groves in the State, with a field open for the profitable employment of $50,000,000 more. Lands suitable for growing oranges are in abundance at low prices. Orange groves can be found in almost every part of the State, and on all varieties of soil well drained, the groves numbering each from 10 to 10,000 trees. Hardly a family, outside of the cities, but cultivates a greater or less number of orange trees, and many residing in the cities do the same. Some of the largest groves in the State are owned by persons living in the towns, or non-residents. In some of the counties there were raised as high as from 4,000,000 to 6,000,000 of oranges last year; and narrow-gauge railroads are rapidly being built to afford the middle counties facilities for shipping their enormous crops to market. Three such roads have been completed within the past few months, and others are projected, while more are under contemplation. Oranges are shipped by these roads to New York in eighty and ninety hours' time. Within the past few years orange-culture in Florida has attained great perfection. It has reached that position where it is possible to analyze the cost of production. Abundant evidence exists that can be brought forward to show the value and profit in it. For the investment of capital, results have shown that there is not at present any pursuit, where the tilling of the ground is involved, that will yield larger returns with less fluctuation. It is always pleasant to be able to confirm such statements with facts. An extensive orange-grower in Putnam county has kept, from the beginning of his grove, an accurate account of the expenditures and receipts to the close of the thirteenth year, ending in 1879. The number of trees was three hundred. They yielded 442,600 oranges selling for

$7,590, against an expenditure, omitting cost of land, first cost of trees, and interest on the money, of $1,950. This gives receipts over expenditures, $5,640. This is only one instance, but it is as good as many, because it is only one in a very large number. It conclusively demonstrates that orange-culture is not at all transitory, nearly all the obstacles in the path of orange-culture having been removed. The future of the business is still more promising. Florida oranges are conceded to be superior to all others. In point of numbers, compared to the great quantities consumed, they are few, yet by their greater merit they have come to occupy the foremost place in the market. The genial and peculiar soil of Florida, together with the sufficiently warm sun to mature and concentrate the juices without destroying the lively aromatic flavor of the fruit, impart this quality-value nowhere else attainable to such an extent. The field they are yet to occupy is practically illimitable. They are yet to possess our own market, the best in the world. This will be the labor of years, and after a great portion of our orange lands have been brought under cultivation. In 1879 there were 257,000,000 oranges entered at the port of New York from foreign countries. Double the number, at least, were entered at all the other ports, making a grand total of 771,000,000 consumed in and lost on the voyage to this country, in addition to our Florida crop. We cannot predict when the domestic will take the place of the foreign product, but it is inevitable in the course of time. Our inability to supply the demand is the main obstacle. That this will be the ultimate result is clear from another cause, independent, or nearly so, of merit. The liability of loss and damage resulting from uncertainties of a sea voyage, form an important factor in the conduct of the foreign fruit trade, serving to make it extremely hazardous, a circumstance against which dealers do not have to contend in the shipment of Florida oranges. We have railroads leading to all the great markets of America, and when the fruit is transported by water, all facilities are afforded by perfect and commodious steamers. Orange-culture, therefore, may go on indefinitely in Florida, without fear of reaching a general redundance of product. When our own

market is occupied, those of Europe and elsewhere will be open to us. The growing desire everywhere for semi-tropical fruits, which the efforts of producers are trying to satisfy, is unlimited, and therefore efforts in orange-culture can continue to be put forth until this unlimited and independent desire is met—a goal which, perhaps, never can be reached.

To persons of foresight and capital, who are looking to the future rather than the present for remunerative returns, Florida presents, in her orange pursuits, the most extended as well as the most inviting field. But aside from the question of profit, the culture of oranges presents other practical advantages. It is not only a pleasing but an independent occupation. Its pursuit is no dead-level or monotonous exertion, but one that affords scope for the development of an ingenious mind. As to profit, the orange-grower is working under conditions of constantly increasing advantages. Young men, sometimes with little or no capital, are starting every year in the business, often away from communities of old and experienced growers, and have succeeded by dint of tact and industry. In point of regular profits; in point of an industrious, frugal and cheerful occupation; in point of a very general desire to become independent; in point of repressive and adverse influences in other pursuits, they have found orange-culture, in its practical working, the most pleasing occupation. Persons who own orange groves in Florida are entirely well satisfied, as a rule, with their investments. A bearing grove is worth a great deal of money, and to purchase one would require a large cash outlay. In ten years' time groves are usually in full bearing—often in less time—and the inducement to plant one is very great.

LEMONS.

The lemon grows well on our sandy soils, and ranks next to the orange in profit. It has the advantage over the orange of coming into bearing sooner. The orange bears in eight to ten years from the seed, while the lemon has fruit in four years, The few fruit-growers who have been far-sighted enough to plant lemon groves, are now reaping the benefit of their foresight. The fruit is quoted, and actually sells for as much as the

orange, and after beginning to bear requires far less care and attention. It is capable of standing nearly as much cold as the orange, but fruits best where the climate is mild. Experiments have demonstrated that the lemon will not produce its like from the seed, while the orange in most instances will. The lemon should be budded. One of the largest fruit-dealers in New York, writing on the lemon, says: "The best lemons we get here are those from Florida, because, in the first place, they are naturally splendid lemons, and in the second place, the distance they have to come is so short that they arrive in perfect condition. I paid two years ago as high as $12.00 a box for Florida lemons. They were of extra fine quality, of course, for there were other Florida lemons sold at the same time for $3.00 and $4.00 per box, but the fact that they could command such a price is an indication of the possibilities before the lemon-growers of Florida. They can practically run out Italy in time if they will only take care in growing, sorting and packing, and send to New York the best lemons. The Florida lemons are packed in boxes holding from 250 to 350 each. They are shipped about November."

One prominent fruit-grower of Orange county, about three years ago, budded from a fine variety of Sicily lemon. This winter he shipped 1,000,000 lemons; next year he will market 3,000,000, with an annual increase thereafter. His lemons are picked and shipped after they mature, and command one dollar a box in advance of the finest imported lemons on the market.

LIMES

There is not a more useful and acceptable fruit grown in the State than the lime. It is produced very successfully on our shell hammock and pine land in the southern counties flourishing best where cold weather never visits. It comes to maturity and bears even sooner than the lemon, having fruit in three years from planting the seed. Limes are attracting considerable attention in the Northern market, where they are esteemed superior to the lemon, containing more acid, and being

better shippers. Some shipments have proved very remunerative, the fruit selling for 30 cents per dozen in quantity.

The "pickled lime" is regarded as one of the best appetizers and anti-bilious tonics known. It is prepared as follows: The lime is plucked, when just ripe, a barrel is filled with them and closed up. Through the bung as much ordinary sea-water is poured upon them as the barrel will hold, and allowed to remain for twenty-four hours, the water is then poured off and replaced by a fresh supply of sea-water, which is allowed to remain another twenty-four hours and then poured of. Fill the barrel a third time in this way with sea-water, close the bung and the limes are then ready for use and shipment as "pickled limes." The lime requires very little cultivation, and is almost entirely exempt from the diseases to which the other members of the citrus family are liable.

CANE.

The soil best adapted to the cultivation of cane is a moist black loam underlaid with clay or marl, large areas of which are found among the prairies owned by this Company in the Kissimmee and Caloosahatchie Valleys, which are pronounced by experienced sugar raisers from Louisiana and Cuba to be unsurpassed in the world. They have an average depth of three feet of rich vegetable mold, with a subsoil of white clay. The cane is planted continuously in drills six feet apart, and yields its largest crop the subsequent years, but requires replanting every seven years for best results. It lives the year round in this section, and "goes to tassel," as the saying is, every year, reaching a length of seventeen feet in a season.

To those who have watched the development of the resources of Florida, it is apparent that sugar is the "king" field product of the State, and with the developments now making it will be but a comparatively short period until a large percentage of the sugar and molasses consumed in the United States will be drawn from the rich soils of the Peninsular State. Of all the districts in the Union adapted to the cultivation of sugar-cane, no region is so favored in soil and climate as Florida—the soil

of the rich bottom lands being admirably fitted to the maturing of cane crops. It is no extravagant statement to say that many hundreds of thousands of acres are here awaiting development. Sugar-cane is grown on the pine-lands with good results, where a little attention is given to cow-penning or fertilizing. The climatic conditions are most favorable in South Florida for the production of the crop ; no danger is to be apprehended from frost, which in these latitudes has never been known to injure the cane crop. Here the cane matures and perfects its seed, even when grown for years on the same land without manure. It is customary to replant sugar-cane every two or three years in the more northern sugar-belts of the country. Sugar-cane readily responds to frequent cultivation and fertilization, however, in the southern portion of this State. It is no uncommon circumstance to see good stands of cane that have rattooned from six to ten years. On the shores of Lake Worth cane was recently seen growing that had not been replanted since the Seminole wars.

The cost of fencing, plowing and planting the first cane crop upon these prairie lands averages about fifty dollars per acre. The soil is inexhaustible, and needs no fertilizer. The net profits the second year easily amount to eighty dollars per acre, and many growers realize much higher profits.

COCOANUTS.

The entire coast line of Monroe county will in a few years become a vast cocoanut grove, both climate and soil being specially adapted to their growth. The prevailing type of country is a low sandy plain or prairie, where the cocoanut is found to grow and thrive luxuriantly, little or no care being required beyond the original planting. Single, scattered trees are to be found all along the coast, where they appear to have sprung spontaneously from seed-nuts which have been washed ashore. Trees are found on the Keys, at Cape Sable and among the islands in Charlotte Harbor; in fact all along the coast range for three hundred miles.

Bearing groves are found throughout the county. Groves

are now bearing upon or near Key West island, at Plantation Key in the reef range, and at Charlotte Harbor. Major Evans has a grove in his garden at Myers, upon the Caloosahatchie, which produces 300 or more nuts per tree annually. He gathers bunches of twenty, twenty-five and even thirty-four nuts each, and trees are blooming and bearing all the year round, and this seems to be the average production of fully developed trees in South Florida.

It is but recently that this industry has received much attention. The cultivation of cocoanuts, like that of pine-apples, is still in its infancy here, but astonishing figures can be shown, considering the brief time which has elapsed since its commencement. Captain Henry Geiger was the pioneer, and his grove at Boca Chica, near Key West, is now bearing—the interest of farmers and enterprising capitalists was soon attracted to this industry, and during the past few years all the available lands in this immediate vicinity have been secured and planted, and the work is still progressing and extending to the mainland with marvelous rapidity. Three hundred and twenty-five thousand trees are now planted and growing within the limits of Monroe county, of which fifty thousand were set out last year. These are mostly upon the line of keys from Cape Florida to Key West. Cocoanut planting became a "boom" and soon reached the Gulf coast, where extensive groves have been planted at Horseman's Key, Caximbas, Horr's Island, Marco, Myers and Charlotte Harbor, and are all doing well, exceeding even the sanguine hopes of their proprietors.

To show the general feeling and future prospect, one gentleman has purchased a tract of land at Caximbas, and contracted for 30,000 seed-nuts; and at the present moment a vessel has just arrived in Key West harbor, with a cargo of 120,000 nuts, to be planted at Biscayne by a colony recently started. This is but an installment, as they are even now negotiating for 30,000 more nuts, and will in all probability not stop short of 200,000 trees. Others are planting largely along the lower Caloosahatchie Valley with a view to equally large transactions, and it is a question of but a very short time when the desolate monotony of these silent and hitherto practically unknown shores

will be supplanted by the tropical beauty and magnificence of an almost continuous cocoanut grove. Nature has done her part and is quietly waiting, and human energy and capital is alone needed for a long time wilderness to spring into active and profitable life. The annual profit on a cocoanut grove may be safely reckoned at $3 per tree, and one hundred trees to the acre. The trees come into bearing at from six to eight years of age.

It is admitted by all experienced growers that the cocoanut does best on a moist, sandy soil near salt water, but they can be raised on land removed from the coast, if salt is applied to the ground around the trees after they become three years old.

They should be planted as follows: Place tho ripe nuts about four inches under the soil, and about twenty feet apart. Care should be taken to plant the nut with the end that is attached to the stem downward, as the milk inside of the nut will then cover the eye and germinate the young sprout that produces the tree.

The tree should make its appearance above ground in from six months to one year after planting the seed.

THE BANANA.

The banana is not properly a tree, but a plant of leafy, succulent growth, of the genus *Musa*. The stalk is formed of the stems of the leaves in concentric layers, reaching with its leaves, a height of fifteen or twenty feet, and eight to ten inches in thickness, and contains no woody fibre. From the center comes the first bearing stem, which turns and grows downward. The end has the appearance of an ear of corn with purple shuck. This unfolds one leaf at a time, displaying two rows—eight to twelve each—of tiny, little fruit, with their delicate blossoms, until it attains a length of two or three feet, covered with fruit. The leaves are a marvel for size and appearance, sometimes reaching a length of six feet, and eighteen inches in width, of a glossy pea green. The root is perennial. It is large and fleshy, sometimes of the size of a half bushel measure, from which put forth numerous rootlets, half an inch in diameter. From the main root are constantly springing numerous suckers, which go to

form new plants. This being its mode of propagation, these suckers can be taken off to form a new plantation, or remain, as may be wanted.

There are several varieties of banana, among which is the dwarf. This plant rarely attains a height of more than seven feet, is readily cultivated in the southern portion of the State but is too delicate to be safely propagated in the upper tier of counties. The fruit is noted for its large size and delicate flavor and is in demand. At Lake Worth a plantation of bananas has been successfully cultivated for years.

In a suitable soil, which should be rich and moist, and in a tropical climate, it requires about one year to mature fruit, from the first appearance of the plant. Each stock bears but one bunch of fruit. When it is gathered, the stock is cut down. Ten feet apart is a good distance to plant them. This gives over 400 per acre, and the second year there will be six or eight plants to each hill, and soon occupy most of the ground. After the first year they require but little cultivation, the old stalk and leaves acting as mulch and manure. Under favorable conditions there is no cessation of growth. New plants and ripe fruit are found at all times, and a plantation once started lasts for years.

It is probable that no fruit was ever cultivated that will yield more fruit per acre, or result in greater profit to the owner, where there is a market for it. It is easily and cheaply gathered, requiring no packages, and bears handling and transportation well. Three bunches a year per hill is a fair estimate for the yield of a good plantation. This would give over 1,200 bunches per acre. Many of these will contain over 100 bananas each. It is a favorite food in tropical countries, and always in demand at the seaport towns for shipment. There are some people, no doubt, who live on bananas alone; but it is not probable that any amount of work can be got out of a dozen of that fruit a day. Southern Florida and some of the islands on its coast have proved to be suitable and profitable for the culture of the banana, and instances are mentioned where the receipts have been over $3,000 per year from a single acre, including plants sold.

PINE-APPLE.

The cultivation of this most delicious fruit is becoming one of the leading industries of South Florida.

Fully 300 acres are now under cultivation in Monroe county, and the area is being constantly increased as fast as the land can be cleared and the slips can be procured from which they are propagated. The area devoted to this business in Monroe is confined principally to Key Largo and the adjacent keys, where the enterprise was originally started, but the farmers in Manatee and the mainland of Monroe are now turning their attention to this industry, and large fields have been planted in several of the southern counties. Those already started are reported in excellent condition, and the outlook for rapid increase is exceedingly promising. We cite a few figures which have been obtained from accurate information about Key Largo and vicinity. The shipments of pine-apples to Northern markets have been about as follows: In 1881, 30,000 dozen; in 1882, 75,000 dozen, and last year, 150,000 dozen. An acre of land set out in pine slips will produce 8,000 pine-apples, the average price of which, when ready for shipping, is $1.00 per dozen. The Largo pines are already well known, and those which have been produced upon the mainland demonstrates fully that the pine lands of South Florida are well adapted to the production of strong, healthy plants, and a sweet, fine quality of fruit.

The pine-apple is propagated from slips and suckers; the former are taken from the base of the matured pine-apple—each pine producing from five to seven slips. The suckers grow up from the root of the plant, and after being removed and dried stand shipment very well. An excess of moisture in slips and suckers when shipped in quantity is detrimental: in this condition they are liable to deteriorate. After planting, the slips will produce fruit in from eighteen months to two years. The suckers fruit in one year under favorable conditions. Pine-apples require but little attention; their luxuriant growth soon shades the ground, preventing the growth of weeds and rapid evaporation of moisture.

Experienced growers express themselves fully satisfied with their present success, and are going into the business largely.

RICE.

Both the lowland and upland varieties of this most useful grain are grown successfully and profitably in Florida. On the rich hammock lands of the interior of the State, and the stiff pine lands of the South, upland rice of the best quality is raised by small planters, while the rich valleys of the Kissimmee and Caloosahatchie will produce wonderful yields of the lowland, and this, too, without the irrigation which is regarded so essential to its production in Georgia and South Carolina. It requires a moist soil, is sown in drills, and when kept clear of weeds will produce 30 to 100 bushels of rough rice to the acre. Rice is a standard article of food and is used in many manufacturing processes, and there is certainly no reason why its culture should not become at an early day one of the leading industries of this our "State of marvelous resources."

GUAVAS.

Guavas are grown all over South Florida with little cultivation, and are the peaches of that section. For jellies, jams, pies, and to serve with cream they are the most delicious fruit that grows. When cooked or prepared in any of the ways in which we serve peaches at table one soon grows fond of them, and many people relish them eaten from the bush. In addition to its delicious flavor, the guava is a very healthy fruit.

Little attention is given to the manufacture of "guava jelly," though it is confidently believed that it could be made immensely profitable in the southern counties, as the jelly is highly esteemed the world over. When cold-storage warehouses and refrigerator-cars have been introduced, so that the guava can be sent to Northern markets, the demand will be very great.

SUGAR-APPLE.

This fruit grows on a shrub similar to the guava, and is also very tender and needs some protection from cold. The fruit is a rich yellowish green, and rough on the outside, but it is very rich and sweet, and while it is *sui generis*, it may be compared to a date in taste. This fruit does well south of latitude 28 degrees.

THE MANGO

is a rich and deliciously flavored fruit, larger than an egg, and nearly the same shape. It is a greenish yellow on the outside, and a bright yellow on the inside; the pulp being somewhat fibrous or stringy ; it is best to pare and eat with a very sharp knife. It has a large, oblong, single seed, that is quite a curiosity itself. There are several varieties, some of which are hardier than others and more prolific. It is said that the Persian, or East India variety, is most desirable for this State. They are at home on the sandy soils of South Florida, where they come into bearing in five years from planting the seed. The trees resemble the orange-tree in size and shape. They produce about 2,000 mangoes each, which are principally sold in Southern markets, and bring from $1.00 to $3.00 per hundred.

THE AVOCADO PEAR,

usually called "alligator pear," is a peculiar fruit, native to the West Indies. The fruit is very large, pear-shaped, and has a large, round kernel, or seed, in the center. The fruit, even when mature, is a dark green, sometimes shaded yellow, and the flesh is of the same color. The taste is peculiarly oily and pasty, and one must be educated to a relish for it. It is generally eaten with salt, vinegar and pepper; as a salad, it is highly esteemed. The tree is a model of beauty, and grows to a large size on the shell hammocks and sandy soils of South Florida. It commences bearing five years from the seed. Will produce from 200 to 300 pears when eight years old, which are

readily sold in Key West market at prices ranging from 60 cents to $1.20 per dozen.

The mango and alligator pear are growing and maturing their fruit at Point Pinellas, a peculiarly favored spot just west of Tampa Bay. This point, due to the water protection afforded by the waters of the Gulf, Hillsboro Bay and Tampa Bay, is as tropical in its conditions as points on the mainland one hundred and thirty miles further south, and presents unusual attractions to those desiring an equable climate or a point for tropical fruits and early vegetable cultivation. Shaddocks, grape-fruit, sapadillos, sour-sops, Jamaica apples, pawpaws and dates are all grown to some extent in the southern counties, but there are not enough raised to create a demand in the market.

VEGETABLE GROWING

for Northern markets is destined to become a very important branch of business in the southern counties, on account of climate and soil and nearness to market. We may say, without tedious detail, that any vegetable grown North as a summer vegetable can be produced and shipped from South Florida in any of the winter months. This industry was started in Monroe county in 1877, by a shipment of 16,000 crates of tomatoes to New York through the port of Key West. In 1878 there were 25,000 crates shipped through the same port. The first shipment of vegetables this season was made in December, and consisted of tomatoes and egg-plants in quantity. The tomatoes brought 60 cents a quart, and egg-plants $4.00 per dozen in New York.

In the southern portion of the State, tomatoes, green peas, cucumbers, egg-plant, new potatoes, strawberries, watermelons, etc., may be seen growing side by side and in the same field in the month of December. The completion of new lines of railroad now building, in connection with water transportation, will afford facilities for placing these desirable garden products on the Northern table at a season when there will be no competition, and prices obtained will return a large profit.

CASAVA AND COMPTIE.

Starch and glucose can be more easily and profitably made from the casava and comptie than from any other plants known. But as the comptie could not be so easily, abundantly and profitably raised as the

CASAVA,

the latter would be the general crop. It produces more in weight and bulk to a given area than any other of the root family, often reaching, as we are reliably informed, forty tons to the acre; and this in turn yields a larger percentage of merchantable product than any of the bulbous plants, about 30 per cent. of glucose or syrup, 40 per cent. of starch, and 10 per cent. of the residium tapioca, there being no waste but the thin rind.

As a stock for the manufacture of starch, casava, in cheapness of production and yield per acre, is superior to any other field crop, with the added advantage that the tubers may remain in the ground after maturing and increase in weight very rapidly. About three thousand plants are set to the acre, and it is no unusual circumstance to find roots of thirty to sixty pounds each. The crop may be gathered eight months after planting. There are several million of acres of land strictly adapted to this crop under our control. A company is now planting on the Gulf coast for the purpose of manufacture of glucose.

STOCK RAISING.

It is quite difficult, in the limits of a publication of this character, to discuss the best methods of stock raising.

In all the southern counties are to be found large and small herds of cattle. These run at large through the pine woods, swamps and vast prairies of the Kissimmee and Caloosahatchie valleys, and thrive on the coarse pasturage in a manner quite remarkable and satisfactory to their owners, who "round-up" once a year, mark and brand the young calves, and give little other attention to them.

So little expense attends this sort of stock raising that, notwithstanding the small size of the cattle produced, they prove most profitable for shipment to the Cuban markets. Indeed, the hide and tallow of a five-year-old steer would return a good profit on the cost of his keeping. The cattle are not so large as those grown in Texas, because less attention has been given here to improving the native breeds of stock. The cattle raised in Florida are small, with thick heavy necks and fore parts and narrow loins; but when fat a four-year-old when dressed will weigh from 400 to 500 pounds.

The buyers in the Cuban markets (to which shipments are made to the extent of 50,000 head per year), prefer Florida to Texas beef. The grasses in the southern counties are more nutritious, and seem to impart a more agreeable flavor to the flesh than in the northern part of Florida. That this business pays well has this practical proof: More money has been made in stock raising in South Florida than any other enterprise in the State until quite recently, and a number have thus grown wealthy from their herds. The improving of our breeds of cattle and proper experiments with the grasses which may be grown successfully here, will make stock raising in Florida as general as it is profitable, and will give a value to a vast area in the State now practically a wilderness.

To enumerate in detail the varied crops and products of this country would be beyond the province of this paper. Crops indigenous to all parts of America may be safely grown (excepting in the case of a few of the cereals) with less care and labor in their cultivation and production; besides, in many cases the soil can be replanted the same year. The region represented by our companies presents the advantage of a tropical and semi-tropical climate. It is the region where many of the products of both the temperate and tropical climes may be found growing side by side—where the orange, lemon, lime, guava, fig, etc., and all the garden vegetables may be grown for profit in the open air the year round. It is where cotton, sugar-cane, rice, tobacco and all Southern field crops pay best.

Large orange groves are being set out yearly, and the production from those in bearing returns handsome incomes to their

owners. In this region frost rarely comes, and every fruit, flower, hrub, plant or product that grows in any semi-tropical or tropical region of the world matures or can be produced. Here one may behold trees in rapid and perennial growth, forests and fields spread with a rich vegetation, and roses in full bloom at a period when the Northern States are wrapped in snow.

This is the region in which to seek the benefits of a summer climate during the winter months. Although the winters are so mild, the summers do not bring the tropical heat which might be expected, and parties now permanently residing here, after several years' experience, assert that they do not suffer more in summer than they did in their old homes in the North. Any person accustomed to exposure, North or South, can do ordinary farm work during the summer without fear of ill-effect from the heat. The thermometer rarely rises above ninety degrees.

Official records show the average temperature of Florida to be—summer, seventy-eight; winter, sixty degrees.

The daily ocean breezes in summer modify the heat. The Gulf breeze coming in with the setting sun cools the air at night.

Official sanitary reports, both of scientific bodies and the army, show that Florida stands first in health, although in the reports are included a transient population, many of whom take refuge here as invalids in the lowest stage of disease.

The flow of immigration already so great to the "Far West" is settling in upon these lands, so much more advantageously located for marketing products, and possessing superior adaptability to the profitable pursuit of a pleasing agriculture.

The influx of population will rapidly advance the price of these lands in the hands of the husbandman, and the great variety of adaptation and products, with a ready access to the best markets of the world, will certainly work a large and more certain return for labor and capital than in the frigid regions of the more Northern States.

To complete this pamphlet on Tropical Fruits, the following report of Inspector Bostwick, of the New York Custom House, is appended. The utter fallacy of the idea, which is sometimes expressed, that Florida will overstock the market for oranges, is made very apparent in this article.

FOREIGN GREEN FRUIT.

REVIEW OF THE TRADE DURING THE YEAR 1882.

VARIETIES IMPORTED AND THE AMOUNT OF EACH VARIETY, TOGETHER WITH THE VALUE AND THE DUTY THEREON—INSPECTOR BOSTWICK'S STATISTICS.

In offering to the public the statistical review of the fruit trade at the port of New York for the year 1882, the fourteenth the writer has presented in as many consecutive years, it must be confessed at once that there will not be found therein anything of an unusual character, or anything calculated to specially interest the general reader further than the knowledge of the gradually increasing importance of the trade may do. The traffic is one that possesses its full share of the uncertainties of commercial transactions. The perishable character of the fruit, and the chances of the sea voyage from the tropics are quite enough to account for this uncertainty. It should be stated, however, that the gradually increasing use of steamers in the place of sailing vessels is tending to reduce the chances for loss from the voyage. The trade in Mediterranean fruits for the last year shows a large increase over the trade of the year 1881, and from the detailed exhibit of the trade in green fruits generally, as given herein, we learn that the most of the several kinds of fruit imported have also increased in number in the same time. The importation of bananas has doubled, but a striking offset is offered to this increase in the very notable decrease in the importation of oranges, probably the most commonly used of all the imported fruits. Any deficiency in the

receipt of this fruit seems, however, to have been partially made good from the orange growers of Florida, and perhaps the large supply from this source forms one of the most interesting facts stated in this paper, both on account of its present importance and its suggestions as to the future of the orange trade.

MEDITERRANEAN FRUIT.

The importation of Mediterranean fruit at the port of New York during the year 1882 consists of 120 cargoes by English steamers and 12 cargoes by Italian and Norwegian sailing vessels, and comprised 953,837 boxes and cases of oranges and 1,052,874 boxes of lemons. On comparison of the above with the imports of 1881, the result shows an increase of 3 cargoes by steamers and a decrease of 3 cargoes by sailing vessels. The increase in the number of cargoes is represented by an increase of 134,614 boxes and cases of oranges and 192,633 boxes of lemons, and an increase of 18,049,570 oranges and of 63,568,890 lemons in number. The total number of oranges imported in 1882 was 244,270,290, of which 80,609,195 perished on the voyage, equal to a loss of 33 per cent., and the total number of lemons imported in 1882 was 347,448,420, of which 69,489,684 perished on the voyage, a loss of 20 per cent.

GRAPES.

The importation of grapes comprised 108,797 barrels and 10,667 half barrels, on which there was a loss of 25 per cent. Compared with the imports of 1881, there was an increase of 61,797 barrels and of 667 half barrels.

ORANGES FROM THE WEST INDIES, CENTRAL AND SOUTH AMERICA.

The importation of oranges from the West Indies consisted of 5 full cargoes and of parts of several cargoes of oranges by sailing vessels; and 83,587 barrels of oranges by 111 steamers. Of the above, 52,191 barrels were from Kingston, Jamaica, and comprised 18,446,650 oranges; from Havana, 8,866 barrels, comprising 2,953,763 oranges; from Port Maria, 6,065 barrels, com-

prising 2,120,950 oranges; from Jamaica, 5,029 barrels, comprising 1,760,150 oranges; from Samana, 4,608 barrels, comprising 1,612,800 oranges; from Nassau, 1,924 barrels and 2 cargoes, comprising 1,095,050 oranges; from Dominica, 1 cargo and 1,548 barrels, comprising 669,360 oranges; from Montego Bay, 860 barrels, comprising 300,624 oranges; from Savana La-Mar, 750 barrels, comprising 286,300 oranges; from Trinidad, 334 barrels, comprising 116,900 oranges; from Port Antonio, 728 barrels, comprising 263,800 oranges; from Black River, Montanzas, St. Jago, Aricibo, Port au Prince, Para, Lucia, 694 barrels, comprising 244,000 oranges; from Ponce, P. R., 1 cargo, comprising 273,900 oranges; from Mayaguez, 1 cargo, comprising 483,000 oranges; from Abaco, 1 cargo, comprising 200,000 oranges; from Porto Rico, part cargo, comprising 150,000 oranges; from San Andreas, part cargo, comprising 72,000 oranges; from Baracoa, part cargoes, comprising 75,590 oranges, making a grand total of 31,160,587 oranges, of which 11,217,811 perished on the voyage, a loss of 36 per cent. On comparison of the above with the imports of 1881, the result shows a decrease of 35,910 barrels, and of 13,456,325 oranges; less than the imports of 1881, also a decrease of 4 sailing vessels, and an increase of (approximately) 99 steamers engaged in the trade.

FLORIDA.

A passing allusion here to the rapidly increasing production of oranges in Florida may not be thought amiss. The hundreds of thousands (it may be millions) of trees heretofore transplanted are annually arriving at a bearing state, and a large crop of fine oranges the past season has amply rewarded the labor bestowed upon their cultivation. Perseverance and more experience will insure lasting results, so far as the permanence of the fruit growing industry is concerned, and constantly increasing returns to its promoters. The writer predicts that the products of the orange groves of Florida in a single decade will be sufficient to supply the whole United States with an abundance of fine oranges. About 200,000 boxes and barrels of oranges were shipped to this city this season from Florida

and found a ready market, and about 300,000 boxes and barrels of oranges were distributed through the West, South, and Southwest from the same source.

The trade in West India oranges the past year proved both unsatisfactory and unprofitable.

Amongst the principal importers in this city who are engaged in the fruit trade with the Island of Jamaica, and the West Indies generally, are Messrs. Gomez & Pearsall, Mr. Joseph S. Johnson, Messrs. George H. Richardson & Co., Messrs. G. Wessels & Co., Mr. Aubrey G. Hutcheson, Mr. G. de Cordova, Messrs. William Douglass & Son, Mr. R. McD. Kirkland, Mr. Joshua C. Cromwell, Mr. W. M. Hinton, Mr. J. F. Ferrier, Mr. John Marsh and Messrs. C. H. Griffin & Co.

PINEAPPLES.

The importation of pineapples from the West Indies the past year consisted of 30 cargoes by sailing vessels, and 15,033 barrels by 81 steamers. Of the above 12,692 barrels were from Havana, and comprised 568,610 pineapples; from Port Maria, 247 barrels, comprising 10,460 pineapples; from St. Jago, 41 barrels, and 22,596 pineapples in bulk, comprising in all 24,621; from Kingston, 816 barrels, comprising 40,807 pineapples; from Nassau, 2 cargoes and 897 barrels, comprising 229,748 pineapples; from Port Antonio, 163 barrels, comprising 8,150 pineapples and 9,804 in bulk; from Green Turtle Bay, 1 cargo, comprising 31,212 pineapples; from Eleuthera, 5 cargoes, comprising 412,388 pineapples; from Governor's Harbor, 4 cargoes, comprising 212,616 pineapples; from Abaco, 8 cargoes, comprising 468,744 pineapples; from Cat Island, 10 cargoes, comprising 528,672 pineapples; from Montego Bay, Trinidad, Barbadoes, Corn Island (in bulk), and Curacoa, 189 barrels, comprising 9,488 pineapples; making a grand total of 2,555,320 pineapples.

On comparison of the above with the imports of 1881, the result shows a decrease of 3 cargoes by sailing vessels, an increase of 11 steamers engaged in the trade, also, an increase of 1,062 barrels of pineapples, and 499,301 pineapples. The average loss on the above was 20 per cent.

Amongst the principal importers engaged in the trade are Mr. Joseph S. Johnson, Mr. Aubrey G. Hutcheson, and Messrs. Gomez & Pearsall.

Probably few persons in this city are aware of the fact that nearly two millions of pineapples are annually canned or packed at the canning factories of Mr. Joseph S. Johnson at Eleuthera and Harbor Island, in the West Indies, about three-fourths of which find a market in this city and the residue in Europe.

The annual production of pineapples in the State of Florida is gradually on the increase. Four cargoes, aggregating about a quarter of a million of fine pines, of superior quality, were received in this city the last season.

BANANAS.

The importation of bananas (mostly from the West Indies) the past year consisted of 146 cargoes by sailing vessels and cargoes and parts of cargoes by 99 steamers. Of the above, 142 cargoes by sailing vessels and 7 by steamers were from Baracoa, and comprised 388,859 bunches; from Port Antonio, 286,912 bunches by 47 steamers and 4 sailing vessels; from Port Maria, 115,796 bunches by 20 steamers; from Montego Bay, 42,952 bunches by 9 steamers; from Jamaica and Kingston, Samana, Belize (Hon.), Curacoa and Corn Island, 25,017 bunches by 6 steamers; from Colon, 39,140 bunches by 6 steamers; from Port Limon,* 20,994 bunches by 4 steamers; making a grand total of 919,670 bunches of bananas, showing an increase of 495,389 bunches and an importation more than double the number imported in 1881. Of the above 147,227 bunches perished on the voyage, a loss of 16 per cent.

Amongst the principal importers of bananas, in this city, importing mostly from the West Indies, are Messrs. Gomez &

* Since the recent construction of the Costa Rica Railroad, seventy-one miles long, extending from Port Limon to Rio Scucio, through a fertile country abounding in banana plantations, and the recent renewed appreciation by the natives of the importance of the cultivation of the banana, and the present facilities for unloading the fruit directly from the cars along the side of the steamers, largely increased importations of bananas from Port Limon are confidently anticipated in the future.

Pearsall, Messrs. George H. Richardson & Co., Messrs. G. Wessels & Co., Mr. Aubrey, G. Hutcheson, Messrs. Wm. Douglass & Son and Mr. Edgar Tilton.

The reasonable anticipations of the importers of West India bananas the past year were far from being realized. On the contrary a large amount of loss was sustained by those in the banana trade.

ASPINWALL BANANAS.

The importations of bananas from Aspinwall the past year consisted of 68 cargoes per steamer, of which 60 cargoes were imported by "The Frank Brothers Company," comprising 429,987 bunches bananas, and 8 cargoes by Messrs. George H. Richardson & Co., comprising 66,835 bunches, making a total of 496,822 bunches bananas, of which 84,459 bunches perished on the voyage, an average loss of 17 per cent. There was an increase of 7 cargoes, and of 35,861 bunches bananas over the imports of the previous year. The importers engaged in the Aspinwall trade are The Frank Brothers Co., Messrs. George H. Richardson & Co., and Messrs. G. Wessels & Co.

COCOANUTS.

Cocoanuts were imported from the following named places during the year in quantities as follows: From Baracoa, 6,079,-634; San Andreas, 1,863,837; San Blas, 2,048,186; Ruatan, 596,691; Barcelona, 687,344; Aspinwall, 549,000; St. Jago, 520,400; Porto Bello, 460,000; Blewfields, 572,000; Trinidad, 198,258; Montego Bay, 205,700; Port Spain, 144,768; Kingston, 201,725; Boco del Torro, Port Limon, Porto Rico, Port Antonio, La Guayra, Belize, Port au Prince, Greytown, Barbadoes, Corn Island, Curacoa, United States Columbia, Columbo, Aricibo, Maracaibo, Port Maria, Samana, Pernambuco, Guantanimo, Jamaica, Nassau, Progresso, Truxillo, and Cienfuegos, in quantities aggregating 914,365 cocoanuts, making a grand total of 15,041,-507 cocoanuts, which comprised the cargoes and parts of cargoes of 217 sailing vessels and 72 steamers. Of the above, 1,203,320 perished on the voyage, a loss of 8 per cent.

On comparison of the above with the imports of 1881,

the result shows an increase of 4,662,678 cocoanuts over those of 1881.

The principal importers of cocoanuts from Central and South America and Cuba are Messrs. George H. Richardson & Co., Messrs. G. Wessel & Co., Messrs. William Douglass & Son, and Mr. Aubrey G. Hutcheson, and Messrs. Gomez & Pearsall, from Baracoa.

MISCELLANEOUS.

The importations of limes comprised 1,987 barrels, on which there was a loss of 35 per cent.; 25,600 grape fruit, loss 10 per cent.; 1,270 shaddocks, loss 10 per cent.; 74,150 mangoes, loss 50 per cent.; 15,115 plantains, loss 15 per cent.

The value of green fruit entered for consumption at the port of New York from January 1, 1882, to December 31, 1882, is exhibited in the following table:

Varieties of Fruit.	Pr. Ct.	Value.	Amount of Duty.
Oranges and Lemons	20	$3,853,007	$770,601.40
Grapes	20	386,392	77,278.40
Pineapples	20	102,693	20,522.60
Bananas	10	823,227	82,322.70
Limes, Shaddocks, Mangoes, Grape Fruit, Plantains, Sapodillas, Avocado Pears, Guavas, and several other varieties of fruit not specified, under the head of Miscellaneous	10	11,993	1,199.35
Cocoanuts	Free	353,502	.....
Total value and duty		$5,530,734	$951,924.35

A comparison of the value of green fruit imported into New York in 1881 with that, in 1882, shows an increase in value of $1,147,638, and of duty $189,548.36.

The countries and islands from whence the foregoing varieties of fruit were imported are Mexico, Central America, British, French and Danish West Indies, Cuba, San Domingo, Hayti, United States of Colombia, Venezuela, British Guiana, Brazil, England, Scotland, France, Spain, Portugal, Italy and Sicily.

J. H. Bostwick,
U. S. Inspector of Customs.

Burling Slip, New York, April, 1883.

The following paper on the climate of the Gulf Coast of Florida so exactly describes that of Palma Sola that it has been included in this pamphlet with many thanks to the author:

A WINTER CLIMATE FOR INVALIDS—

THE GULF COAST OF FLORIDA.

By R. J. Levis, M. D.

From The Continent.

The season is at hand when those who, like the birds of summer, take annually their flight southward, will be thinking of running away from winter. There are many who seek genial airs and sunlit waters for pleasure only, others to escape from the chilling discomforts of winter; and the great invalid corps, turning its back on cold and death when the leaves fall, makes its pilgrimage to sunny lands.

In the choice of a climate for invalids in general, there are certain health-giving factors which may be summed up as *equability of temperature, purity of atmosphere and comparative dryness.*

I regard it as essential for most invalids that the temperature shall be such that they may be able to remain for an indefinite time out in the open air without discomfort, and to freely permit it to enter their apartments at all hours of the day and night.

The general prevalence of bright, clear, sunny days, with the rarity of cloudiness and a light rainfall, are essentials of a winter health resort for lung diseases. The physiological, and specially the stimulating and eutrophic effects of sunlight on the human

system, are well recognized; but, owing to the in-door habits of invalids, are too little regarded.

The discomfort and depression produced by the prevalence of violent winds are familiar to most conditions of invalidism, and climates of continuous and moderate air-movements are found to be the most desirable.

An atmosphere of varying electric conditions, with the consequent production of ozone, purifying the air and keeping it free from septic germs, is favorable.

A dry soil of sand or gravel, which quickly absorbs and filters away the rainfall from its surface, and does not keep the air moist by evaporation, is an essential of a winter health resort for pulmonary affections.

The salubrious atmosphere from extensive pine forests, with their ozone and antiseptic influences, should incline invalids to the choice of such proximity.

Facility for sea-bathing, at a tolerable temperature throughout the winter, gives occupation and pleasure, and is an important adjuvant in the treatment of some morbid conditions.

As incipient and developing pulmonary tuberculosis, and in many other diseases prevalent among the dwellers in cities, it is essential that there shall be a change of habits from a sedentary to an out-door life, the region for a health resort should be one in which there are abundant opportunities for amusement or for agreeable and profitable work in the open air. In a region of country where open-air amusements can be varied by riding, hunting and sailing, and where the scenery is an attractive blending of vistas of forests and stretches of water, the conditions most favorable to an out-door life will be most happily presented.

The poorly-nourished victim of tuberculosis should not be banished to a land where his diet may be impoverished by the lack of fresh meat and vegetables. If he is where he can add to his fare by the products of his recreations of hunting and fishing, then will good digestion be most likely to wait on appetite.

Agreeable society is an essential of happiness and a preventive of depression of spirits in that class of invalids who are obliged to seek winter quarters away from home. Their associations should not be in a crowded caravansary, where the halls echo with the

sad sound of coughing, and the corridors seem sepulchral with the hoarse voices of sufferers. Far better is it to find companionship with the woodsman or the fisherman, and be entertained by their woodcraft or simple lore of boats, bays and streams.

The ideal winter climate for invalids, embracing perfectly all the essentials and suited to the fancy and caprice of sufferers, may not be found, but it can be approximated in its most important requisites.

It is evident that in Europe and in this country mild or warm climates have of recent years grown most in favor as winter health resorts. In our own land Florida has become the great winter sanitarium for consumptive invalids, for the nervous and debilitated, and for valetudinarians of all degrees, with the prospect of increasing in repute as the merits of some of its most advantageous localities become more generally known. My personal observations of Florida have extended over the regions usually visited by invalids and tourists, and over a domain of wilderness beyond the ready access of travelers. The greater part of the territory of the entire State still remains inaccessible to invalids, and the tide of travel is mostly confined to the great water-course of the St. John's River and vicinity; but the increased developments of railroads and of the coast and interior navigation are about to speedily spread travel over a most attractive sanitary region. That there are portions of Florida much more suited for winter homes than those generally resorted to it is the object of this article to state.

Florida is a land of many waters. It has a coast line of about twelve hundred miles. Its rivers, lakes, everglades and lagoons are numberless. It is estimated that from a fourth to a third of the entire State, varying with the season of the year, is covered by water. To its extensive and peculiar water containings and surroundings is due its unique and wonderfully mild and equable climate. Florida is our nether land, which, as Sidney Lanier wrote, by "its peninsular curve whimsically terminates our country in an interrogation point." It geographically and climatically resembles Italy, but its air is more bland and healthful, and its soil has even a greater range of productiveness.

No known land is exempt from the liability of its inhabitants to pulmonary consumption, but in this country statistics of the last

two decades show that the disease progressively diminishes from our extreme Northern States southward to Florida. The mortality from consumption, as compared with all other causes of death in Florida, is, by the census, but 58 to the 1,000; whilst in the State of Maine it is 258 to the 1,000; Connecticut, 179; Pennsylvania, 142, and South Carolina, 90.

The low consumption mortality of Florida exists, notwithstanding the number of Northern invalids who seek too late its healthy air, only to end their days and add to the normally very low death rate. The best authority on the subject, Dr. Kenworthy, of Jacksonville, who has given much intelligent attention to climate in the cure of consumption and to sanitary statistics in general, believes that the mortality from consumption among the permanent residents of Florida actually does not exceed thirty deaths to the thousand from all causes.

Of the extended seaboard of Florida the Gulf Coast stretches over seven hundred miles. The climate of this coast has, in my opinion, more of the essentials of a good winter resort for invalids than any other of which I know. I make this statement after some personal experience over a large extent of the coast, from much conference with invalids who have happily tested its merits, and from a comparison with the thermometric and hygrometric records of many of the various popular health resorts of the world. The west, or Gulf coast of Florida has a temperature more mild, equable and dry than that of the corresponding Atlantic border. As compared with that of the much-frequented region of the St. John's River, in the winter season it is free from malarious influences, fogs are unknown, and the opportunities and inducements for an out-door life are far greater. Sidney Lanier, the poet, whose failing days were prolonged by a residence in Florida, says that the air of the Gulf Coast is "milder and dryer than on the eastern coast in midwinter; and it is to be greatly hoped that increased facilities for reaching these favorable regions will soon render them practicable to those who now find the journey too trying."

For the agriculturist and the orange-grower, and for the gardener who raises early vegetables for the Northern markets, this coast offers a fertile soil and a climate freer from destructive frosts than any other part of the peninsula. To the capitalist and the

investor for speedy increase in values of lands, it, with the rapid development of railroads now stretching their competing lines to the fertile hummock lands and numerous harbors of this coast region, gives assurance of a flood tide of immigration—

"The first faint wash of waves where soon
Shall roll the human sea."

The Gulf Coast has great advantages in its many excellent harbors, and is, in this respect, more favored than the Atlantic border of the peninsula, which, south of the mouth of the St. John's River, has not a single good harbor. The best harbors of the west coast are at Cedar Keys, the Anclote River, Clear Water Harbor, Tampa Bay, Manatee Bay, Palma Sola Bay, Sarasota Bay, Charlotte Harbor and San Carlos Harbor; but there are innumerable inlets, with moderate depths of water, passing in between the thousands of beautiful islands which border the entire coast line. These islands, or keys, are lovely, fertile tracts, mostly in primitive wilderness, capable of high cultivation, with a delightful climate, and their only disadvantage is the liability to partial overflow from the occasional hurricane tides of late summer or early autumn. Residences on them can be safely located only on eminences above the possible reach of the waters, which may rise six or eight feet above the normal level.

The whole of the Gulf Coast, from Cedar Keys southward, is attractive for health- and pleasure-seekers, but the southern limit is sharply defined near the end of the peninsula by a region so inflicted with insect annoyances as to render human existence intolerable. How far southward the coast may be in all respects desirable for winter residences, my explorations have not determined; but from Homosassa down as far as the Ten Thousand Islands, a region included between the twenty-sixth and twenty-eighth degrees of latitude, the invalid will find a winter climate presenting the essentials, as I have stated them, of *equability of temperature, purity of atmosphere and comparative dryness.*

The mean temperature for the five cold months for a period of five years, at the United States Signal Station at Punta Rassa, about two hundred miles south of Cedar Keys and one hundred north of Cape Sable, is shown in the following table:

	November..	December...	January....	February...	March.....	Mean for 5 months..
Punta Rassa.....	69.4	64.6	64.8	66.1	68.8	66.7

Another table shows the maximum and minimum temperatures for the same months in the years 1878 and 1879.

Punta Rassa.	November..	December...	January....	February...	March.....	Mean.....
Maximum.....	83.7	76.2	79.3	79.5	82.6	80.7
Minimum.....	46.7	42.3	46.7	47.5	49.7	46.6

Here is shown a winter temparature which, with its well-known equability, renders out-door life agreeable, and dwelling apartments can always be kept open to the free admission of air. The winter temperature is rarely so low as to require even the open wood-fire. The skies, from sunrise over the tops of the pines and palms to the dip of a red sunset into the warm waters of the Gulf, are almost always bright and blue, checkered only by white flying clouds. The balmy breezes blow mildly and almost without ceasing, excepting during an occasional lull of calm at the sunset hour, so that the advantage to health of continuous and moderate air movements prevails.

As to purity of atmosphere the situation and surroundings are extremely favorable. The breezes blow from either the vast area of waters of the Gulf or from over great forests of pine, palm and cypress, with their ozonizing influences. It is due to these agencies and to the remarkable dryness that an aseptic condition of the atmosphere exists. I have seen venison, game birds and other meats remain for many days, or even for weeks, hanging unprotected in the open air, free from taint, and becoming merely hard and dry without decomposition.

No claim for the sanitary merits of the Gulf Coast of Florida will create so much surprise as that of the comparative dryness of its atmosphere. The natural and popular inference that it has a

moist climate must be from a consideration of its vast traverses and surroundings of water, fresh and salt, and not from the trustworthy reports of the Signal Service or from personal observation. I am not able to give a reasonable explanation of the cause of the remarkable dryness of the atmosphere amidst such a realm of waters; but that the climate of this coast is comparatively dry and bracing can be proved by the records of official observation and attested by the permanent residents of the region. The following table, from official data, of relative humidity of some winter resorts of Europe and America shows particularly well for Punta Rassa, on the Gulf Coast of Florida, during the five cold months:

	Years.....	November.	December..	January....	February...	March.....	Mean for 5 months..
		per ct.	per ct.	per ct.	per ct.	per ct.	per ct.
Mentone and Cannes.....	3	71.8	74.2	72.0	70.7	73.3	72.4
Atlantic City, N. J.....	5	76.9	79.1	80.6	77.3	76.8	78.1
Breckenridge, Minn.....	5	76.9	83.2	76.8	81.8	79.5	79.6
St. Paul, Minn.....	5	70.3	73.5	75 2	70.7	67.1	71.3
Punta Rassa, Fla.....	5	72.7	73.2	74.2	73.7	69.9	72.7
Key West, Fla.....	5	77.1	78.7	78.9	77.2	72.2	76.8
Jacksonville, Fla.....	5	71.7	69.3	70.1	68.5	63.9	68.8

Data supplied by the United States Signal Service prove that during the five cold months the relative humidity of Florida, as taken at a number of widely separated stations of observation, is less than that of what is popularly called the "dry winter climate of Minnesota."

The very small rainfall at Punta Rassa during the five cold months, given in inches and hundredths, from the statistics of the Signal Service, is as follows:

	November..	December..	January....	February...	March.....	Mean for 5 months..
Punta Rassa.....	1.62	1.08	2.31	1.79	.83	1.52

The mean of the maximum and minimum temperatures of the water of the ocean bottom, at Punta Rassa, for the five cold months during five years, from 1878 to 1883, is here shown:

	November..	December...	January....	February...	March.....	
Punta Rassa.....	72.8	67.2	63.6	68 1	73.0	

Such temperatures render sea bathing agreeable throughout the winter and early spring months.

For an attractive out-door life in the winter for invalids I know of no region equaling the Gulf Coast of Florida, with its great bays and harbors for sailing, its wonderful fishing and excellent deer hunting, and the great abundance of feathered game in the forests and on the waters. There is perpetual inducement to spend time in the open air. The sun does not parch, the winds do not chill, and the atmosphere has that indefinable poetic quality called "dreamy." I have felt comfortable in the bracing air when very lightly dressed, and not oppressed when heavily clothed. Sea bathing is agreeable on the shelly or white sandy beaches all through the winter, and I have found the water warmer on the western than on the eastern coast of the peninsula.

The reason that the Gulf Coast has not been more popularly known as a sanitary resort is the want of convenient access and of accommodations for sojourners, but a happy change is at hand. Coasting steamers now run into all of the more important harbors, as those of Anclote, Tampa, Palma Sola and San Carlos; and railroads are rapidly being constructed to reach the towns all along the coast. The want of convenient residences for invalids is now quite overcome, and comfortable accommodations can be had in every village. The hospitality of the people renders the stay genial and social, and it is a common remark, which I have happily verified, that in Florida wherever you see a house you can find a home, for every home seems open to welcome the stranger.

At a most attractive and salubrious location on the high peninsula between Manatee Bay and Sarasota Bay, on the shore of Palma Sola Bay, a beautiful site for villas is being developed, and a large hotel will be ready this winter for the accommodation of health- or pleasure-seeking visitors. This locality can be readily reached by the coasting steamers from Cedar Keys to Palma Sola,

about one hundred miles, or by rail to Tampa via Sanford, thence by daily steamer to Palma Sola. The land here is much elevated, overlooking the Gulf of Mexico, through Palma Sola Bay and Long Boat Inlet. The elevation of this region, which is the highest on the coast, and its extensive water surroundings, render it most favorable for a winter resort, and, indeed, for residence during the entire year. A number of persons from the North are erecting cottages on these shores, so that abundant accommodations will soon be ready for winter visitors to this favorable locality.

To all who would escape from the severity and danger of our Northern winters and seek a mild, equable and comparatively dry climate, free from malarial influences, and where life in the open air is always practicable and agreeable, I commend a journey to the Gulf Coast of Florida.

MANATEE COUNTY.

In the preparation of this pamphlet, which is designed to give the information most frequently asked for by correspondents, the authors have culled liberally from the most reliable sources obtainable, giving due credit for articles which cost their authors much more work than the simple use of the shears which placed them here. The following article on Manatee County, from the pen of Col. John G. Webb, one of the most practical, scientific and successful farmers, will be found to contain many items of interest which apply as well to Palma Sola, which is located on its western side, as to any part of it.

Area, 4,680 square miles; 2,995,200 acres. Population in 1860, 834; in 1870, 1,931; in 1880, 3,544. Number of public schools, 44; school lands unsold, 86,772 acres; scholars of school age, 1,285; whites, 1,243; colored, 42; attendance, 571; number of acres improved land, 1,993. Horses and mules, 855; cattle, 53,273; sheep, 1,329; hogs, 8,892. Assessed value of property in 1881, $899,556.

Manatee county is mostly situated between the 27th and 28th parallels of latitude, a little of it extending below the 27th, and it cannot be successfully disputed that it embraces the most southern

body of desirable land of much extent in Florida, for, except the islands on the coast below it and a narrow strip on both banks of the Caloosahatchie, only a few miles below, if not within our boundary, and the Lake Worth region in Dade county—of no great extent—I do not know of any very choice locations south of it.

In considering the desirableness of any region as a residence, there are many considerations that enter into a reasonable estimate. In a general way they may be referred to under the following heads, viz.: 1st, Climate; 2d, Soil; 3d, Character of the Inhabitants; 4th, Accessibility.

If a man is seeking for a cold climate he will look elsewhere than in Florida, and if he is seeking a warm and almost frostless one he will be likely to go as far south, even in Florida, as he can get, provided always that the climate in other respects is inviting. He will ask: "Is the climate healthful?" I answer that there is no healthier region in Florida, and I doubt whether there is in the United States. I resided in the county for several years before there was more than one doctor in it, and I don't think that he got rich very fast, though an excellent and scientific physician. There are now in the county just four practicing physicians, and two of them are engaged in mercantile business, and one of those two also edits and publishes a newspaper. The truth is our people are not often very sick, and many things which come under the cognizance of a doctor in other States are got along without his assistance here, and apparently just as well.

I think the most material feature of our county is the size of the families. Children do not seem to be born here to die, but to live, and yet I do not think our people live well, or pay any attention to speak of to the laws of health. It is from such facts as these that I draw my conclusions as to the comparative healthfulness of our climate.

Another feature of a climate is the presence or absence of noxious insects. Let us examine that question. Away from the coast mosquito-bars are the exception, but I think that during a part of every summer people would study their comfort if they provided their beds with them. It is a curious fact that the presence of mosquitoes in large numbers depends upon excessive draughts. In a

normal condition of things, when the ponds do not dry up, the fish, of which the ponds are always full, destroy the wrigglers, and mosquitoes are only produced in such wet places as are destitute of fish. But when the ponds, as they are sometimes, are completely dried up, and are again filled by the rains, and before they get stocked with fish, the wrigglers flourish, with no enemies to keep them down, and generate mosquitoes in countless millions. But the fish reappear from some unknown hiding places, and in a few weeks restock the ponds with young fish and the mosquitoes disappear.

On the coast, while they are never as numerous as they are sometimes in the interior, they are more persistent, though scarcely noticeable except in July, August and September. But the draining (and sometimes this is a simple affair) of the sand flats, where the tide and rain make brackish water, makes a great difference with them. Sand fleas are just as bad, and no worse than in light sandy soils anywhere where dogs and hogs are allowed to run in and under the house. House-flies need never be seen in any well-regulated house, or, rather, house with properly-regulated surroundings.

We have the large rattlesnake, not exactly the same species found North and West, and away from the coast the ground-rattlesnake, and in about sloughs several varieties of the moccasin, and we have a variety of harmless snakes, some of which make war upon the venomous kinds. No white man here ever thinks of destroying a harmless snake, or ever fails to kill a harmful one.

The next question of climate is temperature. I could give yearly and monthly means, but I will not, but prefer to say generally that our short winter in Manatee county is much like the first half of October, minus the rains of that season, in Central New York and New England. It is now more than four years since I observed any frost at my place on Sarasota Bay, or the thermometer below 38, and I think that has been the case only on one morning. It has been forty several times during four years and somewhere about forty-five three or four times during each winter. The early part of the year is usually dry and almost continuously pleasant, and just right as to temperature. About the first of July the weather begins to be showery and becomes hot.

The thermometer rarely rises above ninety, but then it rarely falls below eighty, and until about the first of October this condition of things continues. But even during our summer months, to a man who can afford to desist from labor, the climate is quite as agreeable as the summer of the North. As to the question whether a white man can labor out of doors in a South Florida summer, I can only answer that I have labored consecutively and severely for the last fourteen summers at almost every kind of out-door work. And farm labor is not less essential here in the summer than elsewhere. There are only about one hundred blacks in Manatee county, and it would be absurd to suppose that they do all the summer work for the county. But the value of the climate consists in this: That crops may be produced the whole year round.

Now let us look at the question of soil. We have some rich lands in our county—as fertile as can be found anywhere. One tract on the Manatee River comprises not less than 6,000 acres, and there is a large body equally fertile on the opposite or south side of the river. Smaller hummocks and rich bay-heads are scattered over the county everywhere. The keys or islands lining the shores often have good land, and always a climate free from frost. But if Manatee county consisted of rich alluvial soil like the rich valleys of the North, it would be so unhealthy that all its fertility would be useless. But most of the soil is naturally poor, through flat dry and flat wet to shallow ponds, deep ponds and sloughs, hundreds of thousands of acres prairies and some river bottoms. The high, rolling pine woods make the best orange land, but the flatwoods make the best farms, for while we suffer from two extremes, wet and dry, we suffer most from the extreme of too dry, and it is then that the flatwoods show their superiority. The prairie lands appear fertile, but they have not yet been tried. I believe they are some of our very best lands.

Suppose a stranger comes in from the North or West and buys a tract of pine woods or prairie. He must first decide upon his house. A palmetto-leaf hut is the cheapest and every way the meanest. Then comes the log house, which is cheap if not altogether comfortable. On the coast the concrete house may be built by the most unskilled labor, and, when completed, is a wholly comfortable and not expensive house. Lumber is worth about $16 per

thousand feet at the saw-mills. His chimney, and every house needs one for comfort in winter, is made, away from the coast, of sticks plastered with clay; on the coast, of rock laid in mortar. His cheapest fence will be plain No. 11 galvanized wire; two strands will keep out cattle. Posts should be ten feet apart, of lightwood, and will not cost much. A ditch should be dug around the fence and the earth thrown under the wires, and then a log laid along the ridge. This completes the fence and makes a hog and cattle-proof fence. The ditch keeps off fire, and with a suitable outlet keeps off water from adjacent overflowing lands. Why not use rails? Because near the coast the pines will not split, and the pines of the interior will not last as rails more than five years. The fence I have described can be built at a cost not to exceed fifty cents a rod. Then comes clearing. To clear away the palmetto will not cost over $10 per acre; much land can be cleared for half that. The trees are simply deadened, and the land in August planted to sweet potatoes and partly in cow-peas. These last are to be turned under before they die in November or December, and in February planted to sweet potatoes. This is the great renovating crop. All weeds and grasses are "listed in" with the hoe and plow into the ridges, and sweet potatoes planted anywhere from August till November, and dug when the proprietor sees fit. He digs them only when they are wanted.

The settler should lose no time in providing himself with pigs, and even if he has to buy corn to feed them they will pay in the manure they will manufacture. There are other sources of garden manure that will suggest themselves to the economical and tidy housekeeper, that, for the sake of health and exemption from house-flies, should not be neglected. There are times when fastidiousness "o'releaps itself." There is also a manure manufactured from the wastes of the fisheries that is valuable.

But the great source of manure in Florida is now and always will be muck from the sea coast or ponds. There are various ways of preparing it. My method is by heat. Make a pile of lightwood and cover it with muck, except a breathing hole in the top. Heat it like a coal-pit or tar-kiln. When the wood is burned up the muck will be converted into manure.

But with all this labor of manure-making can he also make

money? By gardening, if near transportation, yes. Manatee county is beginning to show her ability to furnish the North with early vegetables. The business has hardly begun. So far the North has refused to buy our sweet-potatoes, which are so much superior to those they are accustomed to, and at the same time so different that they need to learn to eat them under a new name perhaps. A little well-directed effort will remove this prejudice, and if once removed a new and immense source of revenue will be opened up to us.

It will be noticed that I have said nothing of the orange or its kindred. I have done so because I have been addressing plain people. Only a capitalist can afford to create an orange or lime grove. The plain farmer will gradually produce one. It will be to him a branch of his farming instead of his sole employment, and considered in this light it will pay. Nor have I alluded to the banana. The stranger can have but slight conception of the luxuriance of growth and magnitude of yield of this plant. The most profitable kind, the African, is best cultivated in rich ponds, bedded up high and drained. As the herbaceous tree produces a bunch and the bunch ripens, the tree dies; but many shoots spring up to take its place. These, except one, can be transplanted, and before a year they will bear. I have seen four hundred bananas on a single shoot at one time, and the shoots need not be over ten feet apart. The market for these bananas is constantly increasing, but if the settler never sold one he would be the gainer for it.

YACHTING ON THE GULF.

DOWN THE COAST IN THE SCHOONER MALLORY.

AN ARTIC NIGHT AT CEDAR KEYS—SAILING INTO SUMMER WEATHER—THE FIRST GAME—PALMA SOLA.

"Oh, wad sum power the giftie gie us,
To see oursels as others see us."

Burns.

The following letters, cut from the New York Sunday *Times*, of April and May, '84, give so pleasant a picture of Palma Sola and its surroundings, as seen by their special correspondent, W. Drysdale, that they are given entire. This gentleman was so happily impressed with the location that he selected a home where a horde of newspaper men will enjoy with him the pleasures of winter life on Manatee Bay. When a New York newspaper man fails to find the best thing in life, and get them, too, it's of little use for others to seek them. His experiences—hunting, fishing, and boating—make a part of the every-day life of the resident here, boats being oftener used for travel and transportation than teams.

The fact that Florida, and especially this part of it, is attracting attention that is as world-wide as the circulation of the Sunday *Times*, is evident from the fact that hundreds of letters were received from all quarters of the States, Canada, and England, referring to the *Times* correspondence from Palma Sola, and asking for further information. To the *Times*, and especially "W. D.," Palma Sola is indebted for more than "honorable mention," full appreciation of which will be made evident upon his return.

PALMA SOLA, Fla., Feb. 13.—In wandering aimlessly about the streets of Cedar Keys in search of my friends with the yacht, and afterwards in despair haunting the piers with the idle hope that I might find their vessel without even knowing her name, I came across a trim little schooner yacht, so much neater and shapelier than any of the others, so much cleaner and brighter in her paint, so much more taut and ship-shape in her rigging, she looked as if she might belong to a party of New York pleasure seekers. And so indeed she did. She was the yacht Mallory, preparing for a fortnight's cruise down the Gulf coast to that paradise of the fisherman and the sportsman—Charlotte Harbor. Anything more pleasant than such an excursion as this it would be difficult to imagine—making a dash out of New York in the worst of the cold season, coming rapidly southward by rail and finding at Cedar Keys this fine schooner yacht equipped and provisioned in a way that would have answered for a transatlantic voyage. And three gentlemen, Mr. Henry Gaullieur, Mr. Barnet Phillips, and Mr. Turcas, had settled upon the most enjoyable thing in the world for a winter trip, and were ready to get into the region of perpetual summer without delay.

Three o'clock having been fixed upon for the sailing hour, we all went up to the Suwanee House to dinner. And when the viands came in, served upon something like a score of dishes for each person, we gave ourselves up for lost. One member of the party, who has had unlimited experience with hotel dinners, said he had always found that the more dishes that were served the poorer was the dinner. When there were only two or three dishes they were likely to be good and well cooked, but when there were a dozen they were pretty sure to be bad. This dinner in the Suwanee was no exception to the rule. There were plenty of dishes, such as they were, and they were very good what there was of them. But even a New York dinner at that moment would hardly have tempted us, for we were full of the vexation of having a truck-load of trunks and satchels taken to the yacht, and of collecting the thousand and one things that can only be gathered together at the last moment. The obliging landlord promised us that the porter should have a truck in front of the hotel for our trunks in half an hour; it could not

possibly be there sooner, but it should not be a minute later. So we started out for the stores again to see what else we could find that might possibly be useful in such a voyage. When the time was about half expired we returned to the hotel to see after our baggage, and were told by the landlord, with a show of pride at his punctuality, that our trunks were gone.

"Gone!" exclaimed one member of the party, aghast. "Impossible! Why, my trunk was not packed."

"I can't help that," said the landlord, "the trunks are gone. They went about ten minutes ago."

The unpacked member hurried up stairs to see what had happened to his baggage, and found indisputable evidence that the porter, in his zeal to be on time, had packed his trunk for him and hustled it off to the yacht. He had not thought it worth while to put in the few stray hair-brushes, whisp brooms, and other toilet articles that were scattered about the room, but all the larger articles were gone. Mr. Gaullieur gathered up the fragments, which in this instance did not make 12 basketsful, but only one little bundle, done up in a newspaper, and we started for the yacht, the landlord declaring as we went out that the porter never had done such a thing as pack a guest's trunk before, and that he would see that he would never do it again. This was a noble resolve on the landlord's part, and I trust he will carry it out.

When we reached the yacht, at precisely 3 o'clock, we found the shipping agent, the captain, the crew, the cook, two or three porters, and a little army of hangers-on about the wharf, all making frantic efforts to get the last of the provisions and other necessaries on board. That is, each one was trying vainly to get somebody else to do something, and nobody was doing anything worth talking about except the shipping agent, who was a New-Englander, and had more energy than a dozen of the natives. Two or three little things were still lacking, and we could not well start without them—the water, for instance. Now, water was the last thing that any one in our party would have waited for, but the cook declared he could not get along without it, and we had to take some aboard. Then there was a sailor missing and the agent said he was too good a man to lose

and we had to wait for him. One stray article after another kept arriving till nearly dark, the water was taken aboard another sailor was found, and we were all ready to be off. But just at this happy moment the wind died out and the captain said there was no possible chance of our getting out of the harbor before morning. Considering what an undertaking it was to get everything together, the commander of the expedition decided to run no more risks, but to keep the party aboard the yacht all night and make an early start in the morning. So with the bow and stern securely tied up to the wharf we had a chance in the early hours of the evening to look into the mysteries of the lockers and closets and fo'castles and cubbies that were scattered all about us. And what an outfit for a pleasure trip we gazed upon! What cans of meat, what baskets of bread, what stores of everything good to eat; what company files and regiments of bottles, containing, no doubt, Apollinaris and soda; what boxes of cigars; what pillows stuffed with choice brands of smoking tobacco; what varieties of pipes; what countless little devices for making a fortnight's cruise pleasant! It reminds me of Robinson Crusoe after he had made a successful trip to his wonderful wreck, and returned to the island loaded down with everything the heart could desire. I doubt whether a vessel ever went out of port for so short a cruise so wonderfully provisioned. There was only one thing lacking, in my opinion, as we lay in harbor at Cedar Keys that night. This was a gale of wind that would drive us a few thousand miles away, down to the west coast of Peru, for instance, or into the mouth of the Amazon, and wreck us on any distant but friendly coast, that we might gather together the remains, and live for months upon them without thought of coming back to civilization. But no gale came, nor any wind at all, and we lay quietly by the wharf all night.

As we were in mild and sunny Florida, of course we expected reasonably comfortable weather. But for that first night of our journey we were mistaken. The wind had been chilly enough in the afternoon, but as soon as the sun went down it was absolutely cold. Although we all had heavy clothes and plenty of blankets, we suffered more from the cold that night aboard the yacht than we would have in New York in a room

without a fire. There was no way to keep the cold wind out and blankets seemed to have no effect upon it. A glass of water stood upon the cabin table, and when I got up in the middle of the night, preferring to sit up and shiver rather than lie still and freeze, I found myself watching this glass of water to see whether it would not take on a coating of ice. Of course, it was not cold enough to freeze, but it was a miserable kind of cold that went through all the clothing you could put on, and made everybody and everything uncomfortable. Although no one in the party acknowledged to having passed a night of misery, yet I noticed that within five minutes after we heard the cook starting a fire in his gallery we were all upon deck hugging his little cooking pen in the most abject manner. He used cedar chips for fuel, and the smoke of a thousand lead pencils came out of the galley pipe and nearly suffocated us. But we were all so nearly frozen that no amount of smoke could have driven us away from the fire.

We were a jolly pleasure party, hugging the galley fire before daylight, choked with the aromatic cedar-wood smoke, and all chilled to the marrow. Soon after daylight the sun gave some signs of coming up, and we watched for it with the greatest anxiety. I don't remember ever looking for the sun's coming up with any great concern before, but this morning we all looked upon him as our best friend, and when, after just showing his head, he disappeared temporarily in a bank of mist, our spirits fell almost as low as the thermometer was. Pretty soon, however, he began to give us a little heat, and our arctic night on the Gulf coast was over. There was a fine breeze blowing, and we made good time out among the Cedar Keys, out past the lead-pencil works, out of the harbor entirely, out into the Gulf. Then we had a free course and a fair wind for our sail of 200 miles down the coast. It was still too chilly to come out on deck without heavy overcoats, and we kept in the shelter of the cabin as much as possible. We were too far out from the coast to see much of it, but near enough to feel easy over its presence. All morning going down the coast we occupied ourselves chiefly with trying to keep warm, and with wondering how it happened that Cedar Keys was so much colder than New-York.

All four of us had traveled a good many hundreds of miles in search of warm weather, and so far we had made a disastrous failure of it. But about 1 o'clock on our first afternoon out we found it. It came so suddenly it almost seemed as if there were a sharp line drawn from east to west, with cold weather to the north of it and warm weather to the south of it. We were all up on deck shortly after dinner lying in sheltered sunny places smoking our pipes, when somebody discovered it was warm enough to go without our overcoats. Within five minutes all the overcoats were shed and fired in a wintry heap down on the cabin floor. In the next half hour another layer of coats had to follow. We had reached summer land at last after many tribulations. Suddenly the shelter we wanted was from the sun instead of from the wind. We stretched out on the cabin roof, leaned against the masts, or lounged anywhere about the decks without fear of being frost-bitten. The party were well supplied with guns, and as the air was full of gulls, pelicans, and blue heron, we had an occasional shot without any great results. That night we passed in comfort, and early in the morning one of the sailors called us up to see how neatly we had been provided with a breakfast. Our yawl was towed astern with a long line, and in the night a large Spanish mackerel had jumped into it and was waiting for the frying-pan. He was plump and of course fresh, and made us a delicious breakfast. Before noon we reached Clearwater Harbor, where the captain of the yacht lived, and he was anxious to go ashore and see his family. So we came to an anchor, and two of the party went ashore with their rifles in search of game. They came back later, bringing a blue heron, a duck, and a sensational report of a number of wildcat tracks along the shore. This heron and the duck were the first blood, and they made the party long for gore; so the greater part of the afternoon was spent in the cabin operating a lot of little machines that prepared the cartridge shells for business. If our yacht had been captured she might easily have been taken for a privateer schooner fitted out by the dynamiters to assist Ireland. There were enough cartridges aboard to kill every deer in the State of Florida, and powder and shot and bullets enough to supply

an army. We worked faithfully all afternoon with the mysterious little machines, some of which were for ramming the powder and shot into the cartridge shells, and others for trimming down and rounding off the ends. When this little job was finished we had something like five or six bushels of loaded cartridges. About 3 o'clock in the afternoon we reached the mouth of Tampa Bay and went inside past the Egmont Lighthouse. This left us a run of about 15 miles across Tampa Bay to Palma Sola, the first stopping place for the party, and the end of my journey in the yacht. As I had to spend a night there I was interested to know what sort of a place Palma Sola was, and made some inquiries among the crew.

"Well," said one of the sailors, "I can hardly tell you just how large it is. It is smaller than New York, but bigger than no place at all. There are about a dozen houses there, one of which is a good little hotel, one an ice-house, and one Warner's store. The hotel is not very large, but it is one of the best ones on this side of Florida, and you will like it."

Presently, having crossed Tampa Bay, we found ourselves at the mouth of a broad river. On the right a long sandy point extended into the bay. Almost on the point was a little settlement of palmetto houses, which, the sailors told us, were used by fishermen. On the left was a long island, and near the middle of this island, in the front yard of an unoccupied house, was a very large and beautiful date palm tree.

"The name of this place, you know," said one of the sailors, "is Palma Sola, and that is the Spanish for solitary palm. There is the solitary palm on that island." Things were beginning to look a little tropical; the weather was delightfully warm; the shores were shaded with palmetto trees; there was a big palm tree in sight, and the name of the river reminded us forcibly of the sea monster after which it is named. The water was clearer than any we had theretofore seen. The bottom was a pure white sand, and the whole scene was one of summer. As we rounded the point Palma Sola came in sight. First, there was a large brown building, which we took to be the hotel, but which the sailors said was the ice-house; then the hotel showed up, and the church and a lot of residences, and

the great Warner's store, about which we had heard so much from the sailors, for it was said to contain a little of everything under the sun. We found as we drew nearer a large wharf in front of the store, but a steamship lay there, and we were compelled to anchor out in the harbor close to the wreck of an old vessel and directly in front of the hotel. The little hotel looked so clean and inviting that as I had to spend 24 hours there waiting for a steamer for Key West, I took courage to invite my yachting friends to come ashore and eat supper with me, which they did. Of our long walk before dark around curious and interesting Palma Sola, of our breaking big clusters of oysters off the roots of mangrove trees and eating them, of the great supper of fried clams and stewed oysters and fresh fish and fresh vegetables prepared for us in the hotel, and of the comfortable room with the snow-white bed where I was to stay one night, but did in fact stay a fortnight, I shall have something to say next week. W. D.

UNDER THE SOLITARY PALM.

A NEARER VIEW OF A UNIQUE FLORIDA TOWN.

PALMA SOLA ON A SUNDAY AFTERNOON—ROBINSON CRUSOE HOUSES—THE ALLIGATOR BAYOU AND THE OYSTER TREES.

PALMA SOLA, Fla., Feb. 20.—The wreck of an old steamer her ribs and part of her boiler exposed, lies about 200 yards from shore directly in front of the Palma Sola Hotel. When they told me here it was "talked of" blowing the hulk to pieces because of its unsightliness, I remembered a Coney Island landlord saying to me once that he would give $1,000 to have a wrecked vessel on the beach in front of his hotel for an attraction. A wreck always adds to the beauty of a marine view, and this one makes a romantic foreground for a handsome tropical landscape. Our yacht, the Mallory, came to anchor between the wreck and the wharf in front of the hotel, and in a few minutes we were all ashore. Mr. Scott, the landlord, immediately took possession of my big trunk and started it on its journey to the hotel on a wheelbarrow. As the trunk was about four sizes larger than the barrow, and as the path along the wharf was exceedingly narrow, I watched with great interest to see the trunk and the barrow and perhaps the landlord go overboard, but there was no such catastrophe. It was Sunday afternoon, and all Palma Sola was out in its best clothes. The entire population, numbering, when nobody is away on a visit, as many as 50 or 60 people, were on the wharf to watch the steamer, the yacht, or any other exciting thing they could find. Going into

the hotel and examining the register, the first name we came across was a familiar one—"George W. Curtis, New York." We jumped at the conclusion, of course, that we had come upon the editor of *Harper's Weekly* here in the wilds of Florida, but it was another Curtis. There was too much outside that was new and pretty for us to stay in doors before dark. The landlord assigned me to a corner room on the ground floor, with windows overlooking the Manatee River, Tampa Bay, and the Egmont Lighthouse. After two rough nights in sleeping cars, followed by two nights of tossing on the Gulf, the neat little chamber with its snowy bed and furniture of white ash impressed me as such a fairy-bower that I had to call the yachtsmen in to look at it, and then we started out to see the sights. In landing we had noticed a curious place to the left, or westward, and in that direction we walked. The Palma Sola wharf is on a point jutting to the eastward, and immediately above it the river widens out into a little bay, whose shore sweeps around with a graceful curve, showing a beach of pure white sand. A few hundred yards from the hotel the bay spreads itself out into the back country, through a narrow opening half concealed with mangrove trees, and makes a long, narrow bayou, where vegetation is heavy, where fish are plenty, and where alligators on warm afternoons come out and sit on the banks and discuss the tariff question. Along the low sandy shore, between the hotel and the mouth of the bayou, we found a regular Robinson Crusoe settlement, and we went and reveled in it like a lot of school-boys. But I need not apologize for this, for old Robinson is still an intimate friend of mine, and we often spend a rainy evening together. With his exciting adventures, his quaint sayings, and the charm of his old-fashioned style, I find him altogether a better companion under the evening lamp than the artistic modern novel. This is not peculiar to me, but is the case with most men, if they would be honest enough to own it. The three yachtsmen were at once taken with the curious place, and I know it was because it reminded them of Robinson Crusoe's settlement, though they did not say so. There were five or six tiny little houses, built to suit the climate, the walls made of boards, or palmetto leaves, or anything that came

handy, with occasionally one wall omitted entirely, where there did not seem to be any particular use for it; with sometimes an old sail laid over the roof to keep out the rain, with a little fire, often built in the back yard, and the lady of the manor cooking the family supper there. Little houses, some of them not more than 12 feet square; cosy houses, all built under the shade of palm trees of the palmetto variety of trees of some other sort. All the doors and windows open (there is no glass in the windows); children playing in and about them; older people of both sexes sitting about the doors smoking their pipes; a quiet, peaceful little settlement, that in the warm sunset glow looks to us frost-nipped Northerners like Adam's family in Eden, but in reduced circumstances. On one side of the road this little cluster of houses, on the other side the river, with its white sandy beach, and on the sand lying all sorts of little boats, right side up and wrong side up, mantled and dismantled, some with sails and some without; some propped up on one side, as if they had a colic; some high and dry on shore; some full of fish, some of oysters, and, scattered about everywhere, nets and seines and all the paraphernalia of the fisherman. For in these little houses live the fishermen of Palma Sola, and the oysterman, and their neighbors, the shoemaker, the boat-builder, and the painter. A few steps beyond the small houses, which are embowered in green leaves, the road led to a long and narrow wooden bridge. Near the eastern end of the bridge, before we came to it, we found the shore covered with mangrove bushes, and as it was low tide and the roots of the bushes were covered with small oysters we stopped to wonder at them and to eat some of the oysters. They are called mangrove oysters, and are very small, but very sweet. We found some stones and knocked off a few cubic feet of the oysters, and opened them with our knives. The larger ones of them tasted very much like our Shrewsbury, only sweeter. They grow on the roots and lower branches of the mangrove trees in clusters, and you have only to break off a piece of the root to secure a cluster of half a bushel or more. After leaving the oyster trees we went on a few steps further and stopped to admire the scenery. The long wooden bridge I have mentioned spanned one arm of the bayou. On the left,

across the mouth of the bayou, was a narrow wooden footbridge, several hundred feet long, giving access to a number of fine houses that line the river-bank. A short distance further up another narrow wooden footbridge spanned the bayou. As we walked out on one of these little bridges we saw thousands of fish in the water, great and small, but, as it was Sunday, of course we could not undertake to catch any of them. It was too late in the day for alligators, but we saw a number of places on the banks where they had mashed down the tall grass and bushes. The bottom of the lagoon was covered with dark colored weed, which made the water look black as ink, and if alligators know a good place when they see it hundreds of them go in there to rest. The vegetation was very dense, everything green, and palmetto palms were abundant. It was a sight we could have enjoyed for hours if it had not been so near supper time. But we were growing hungry and started back for the hotel, our hearts full of the glories of nature and our shoes full of Florida sand. If we were interested by what we saw we furnished an equal amount of amusement to the natives and their children, who were struck "all of a heap" by the hunting and sailoring costumes worn by our yachtsmen. And indeed I could not wonder at their astonishment, for when a New Yorker gets himself up for a hunting expedition game and natives alike have to quail before him.

When we reached the hotel again supper was not quite ready, and we occupied some of the chairs on the front piazza, watching the sun gild the water for miles up the Manatee River and enjoying the delicious warm air. The table in the public-room was covered with newspapers, and we looked for news from home. I picked up an illustrated paper several weeks old and found two lines under the heading of "Deaths of the Week," that carried me far away from Florida, back to old New York.

"Dr. John B. Wood, ex-President of the New York Press Club."

The warm midwinter sun, just sinking to rest in the waves of Tampa Bay, lost all its brilliancy. The drooping palmetto trees, their green foliage suddenly turned black, changed into

weeping willows. The bright-plumed birds, instead of joyful songs, chirped bits of funeral dirges. What floats from yonder staff—a flag? No, a strip of crape. What rides there by the wharf—a boat? No, a coffin. And this elevated spot of ground by the walk is not a flower-bed but a grave. Two lines of finest print thus change the landscape. Two lines take me from this Eden-spot of Florida back, quickly back, to frozen New York. I see my friend of many years ago carried mournfully to the tomb. I see those mild and loving eyes, in life the cause of so much joy and so much suffering, forever closed in death. I see our mutual friends mourning by the open grave. I see one of the kindest, the gentlest, the noblest of all God's noble creatures hidden from sight, and covered with clay. I feel the stricken widow's heart sink, as the clods fall upon the coffin. My own heart sinks as if in sympathy. I am back in my old chair in a New York newspaper office, hearing words of encouragement and cheer from those gentle lips. Those loving hands I see once more dealing out alms to the homeless and friendless. That tender heart throbs once more, as I have often known it to, at some tale of want and distress. That silent tongue once more is giving new life and new heart to some almost disheartened worker. The jovial smile plays once more upon the lips. Once more the half-blind eyes twinkle with love and good nature. Ah! Dr. Wood, my old-time friend, if nature had made all mankind like you, where would newspapers get their paragraphs of crime, of avarice, of anything mean or wrong? And am I never to shake that warm hand again, never again to hear that loving voice? Once only, doctor, do you inspire an unholy thought, when I grow jealous to think that I must share my love and my sorrow with a thousand other writers of the younger generation. 'Tis but a brief adieu I bid thee, gentlest of friends, if I can so carry myself as to merit a share in the reward prepared for such as thou! Dr. Wood—not that part which was of clay, and is buried, but that part which was of love and goodness, and is in heaven—I was reading about you only yesterday. Though I may never meet you more on earth, gentle, loving Dr. Wood; kind, compassionate, merciful; though the awful silent river for a brief time rolls between us,

yet listen to what I was reading about you, only yesterday, Dr. Wood:

"Blessed are the merciful, for they shall obtain mercy.

"Blessed are the peacemakers, for they shall be called the children of God."

There was something quieting and restful in that beautiful Sunday evening twilight, after our unpleasant experiences further north. The guests in the hotel numbered only three or four besides ourselves, and at supper, which was soon ready, we were favored with seats at the table with our landlord and his family. It seemed like the first real meal we had had for weeks. Perhaps it was because of our unsuccessful efforts to find something worth eating in other Southern hotels; perhaps the sea trip had sharpened our appetites; but, at any rate, that first supper in the Palma Sola hotel seemed better than sitting down to a feast at Delmonico's. All the luxuries of Southern Florida were there—great big clams, beautifully fried; the sweetest of oysters from Sarasota, served raw; an abundance of fresh vegetables just out of the garden; fresh, ripe Florida oranges, and a great dish of guava jelly, home made, from Manatee County guavas. We let no edible thing escape, and after supper returned to the portico to watch the moon come up and smoke our pipes. Presently the yachtsmen returned so their vessel to be ready for a start at daylight; and half an hour later the captain came ashore bearing me a message from them—a box crammed full of cigars and smoking tobacco and a flask containing a sovereign remedy for cramps and indigestion. This was doubly welcome, for the tobacco obtainable in Palma Sola is strikingly different from that found in Havana, and Manatee County is such a strong temperance place the nearest cholera medicine to be had is in Tampa, 30 miles away.

Early to bed and early to rise is the proper thing for Florida, where there is not much entertainment in the evening, but where early morning is always beautiful. I was out on the piazza soon after daylight, in time to see the sun come up out of the river. In the fortnight that I have spent in Palma Sola I have not missed this sight once. The early hands in the

neigboring saw mill were just beginning to gather, for a day's work here is from sunrise to sunset. There were some signs of life aboard the yacht, and as I sat on the piazza in the light of the rising sun I saw the anchor raised and the mainsail hoisted. Ten minutes later the Mallory was under way again, and with a parting wave of the handkerchief to the party, who by this time were up on deck, I watched her round the point. When the breakfast bell rang she was only a little white spot out on Tampa Bay. It does not take long to become acquainted in a small place like Palma Sola with so few boarders in the hotel; and perhaps my stock of tobacco and cholera medicine, judiciously administered, helped bring about that desirable end —for when you are far away from a big city, a man with an open pouch and an uncorked bottle is a man to be cultivated, I was soon on good terms with Mr. Curtis, who if he was not the editor of *Harper's Weekly*, was prime authority on all sorts of Florida fishing, the owner of a row-boat and a great assortment of fishing tackle, an ardent lover of a fragrant pipe, and in every way a first-rate companion. He gave me such glowing accounts of the fishing, the sailing, the alligator-shooting, and the sports of the place in general, and I was so well pleased with the Palma Sola hotel that I determined to spend at least a few days here and let the steamer go on to Key West without me. And now, after having been here two weeks, and having tramped, and rowed, and sailed, and steamed all over the land and the waters hereabout, I am so well acquainted with the Manatee River, with Terra Ceia Bay, with Snead's Island, with the neighboring towns of Manatee, Fogartyville, and Palmetto, and with the big alligator bayou, so cut in the hands with fishing-lines, so tanned with the warm Florida sun, I feel altogether like a native Floridian.

Palma Sola is so different from any other place under the sun, and withal so quiet and so pleasant and inviting, it is worthy of description. It is a new town, even for Florida, where cities of a year's growth stand almost side by side with ancient St. Augustine. About 200 miles down the Gulf coast from Cedar Keys is Tampa Bay. This is a large body of water, four or five times as large as New York Bay, with a string of

islands nearly shutting it off from the Gulf. Going up the south shore of Tampa Bay, three or four miles from the Gulf, the Manatee River is reached. This river is 25 or 30 miles long, and for the first 15 or 16 miles it is more a bay than a river, being from one to two miles broad, with a strong tide. Then the river narrows down into a little stream, full of alligators and fresh water fish. Palma Sola is on the side of the river nearest the Gulf, and about a mile from the river's mouth. The little bay in the river at this point makes an excellent harbor, with water of sufficient depth for the largest vessels. It is only a few years since there were no buildings at all at Palma Sola. Now there is a large store, one of the best in Florida; a good wharf, an immense ice-house, a big saw-mill, a hotel, a church, a school-house, and a number of handsome dwellings, nearly, if not quite all, belonging to Mr. W. S. Warner, the father and founder of the place, the postmaster, land agent, steamship agent, and general factotum. Mr. Warner, a New Englander by birth, but for many years a resident of this part of Florida, saw the natural advantages of the place, bought a large tract of the land, and founded Palma Sola. He has put in some hard strokes of work, and now is reaping his reward, by seeing his big store doing a flourishing business, his saw-mill eating up all the logs it can get hold of, and at least one steamer at his wharf nearly every day. His residence is one of the line houses fronting on the Manatee River, between the river and the bayou. There are three or four of these houses in a row, and they are all occupied by Warners. I tried one day to make a list of the Warner brothers, but at last had to give it up. One of them owns a good-sized steamboat, the Erie, which does a good business in collecting the garden produce raised hereabout in large quantities, and carrying it to Tampa, whence it is shipped by rail to New York. Another brother owns and sails a beautiful yacht, the Mischief, and carries out excursion parties. Mr. Warner has made a heroic fight against being called "captain," and I think he is about the only man in Manatee County who is not "captain" of something or other, if it is only an oyster-sloop. No, there is one other man over on Terra Ceia Bay who is not a captain. He

is a judge. The vessels of the Tampa Steamship Company touch at Palma Sola three times a week, and those of the "opposition line" at about the same intervals, so there is hardly a day without communication with the rest of the world. Just across the river from Palma Sola is Snead's Island, a long, narrow strip of land, which is cut off from the mainland by Terra Ceia Bay. This bay connects with Tampa Bay by a broad inlet, and with the Manatee River by a narrow channel known as "the cut-off," and it is a regular young paradise for a sportsman or a fisherman, and probably as beautiful a little piece of water as there is in the world. It is full of small mangrove islands that look like little green domes set down in the water, and on any day in the year you can sail through it and see from one million to a million and a half (by the census of 1880) of ducks, pelicans, and blue heron. There is some fine land for gardening on the shores of this bay, mostly in the hands of Northern men, and many of the early tomatoes we eat in New York, and early watermelons and other vegetables come from here, though we don't know it. These gardeners have far larger heads, to my mind, than the people who come down here to raise oranges. Tomatoes and potatoes are not so romantic, but they are much more profitable. In this climate vegetables can be ripened in any month of the year, and rates to New York are not high. Perhaps it is the preponderance of Northern people here that makes the place seem so homelike. The Warners, as I have said, are New-Englanders. Mr. Scott, who keeps the hotel is from "Terry Hut," and I think about nine men out of every ten within a radius of five miles are from somewhere in the North. But they vote the Democratic ticket with great unanimity, and you could count the Republicans on your fingers. There has to be something, I suppose, to keep the place from being perfect, and a Democratic majority is good for this purpose. With its glorious climate, its perfect healthfulness, its abundance of fruits and other good things, and its exceptionally good society for such a new country, Palma Sola might be mistaken for the Garden of Eden; only one could hardly imagine the Eden district coming in with a Democratic majority. A new-comer here is always sure at

least of "a good living," unless he gets too lazy to go fishing. With fish hustling each other's shoulders in the water; with oysters growing on the trees; with fruits growing wild; with birds coming up to the back door and making friendly calls, a man could hardly starve here if he tried. It is a great temptation to branch off and write something about the fishing in and around the Manatee River, but I have a great collection of fishing and alligator shooting experiences to tell and must save them for another time. One of the great attractions of this part of Florida, and indeed its very greatest after its climate and its healthfulness, is the fact of its being out of the usual routes of winter travel. The "tourist" does not get here. Our dear friend with weak lungs and a consumption bottle is nowhere to be seen. You can go about all day in a flannel shirt and eat your dinner withont brushing your hair, which is a great blessing. No doubt the New York invalid will find it out in time, but at present he alternately shivers and roasts at Jacksonville, and occupies his spare moments, when he is not telling his intimate friends the latest news from Lung Valley, in trying to find something tropical. The west coast of Florida is about as little known as any part of the United States. I felt almost like a discoverer when I landed at Palma Sola, but others had been here before me; unfortunately I even found that a fellow-townsman of mine in New Jersey, Mr. J. M. Atwater, of Crawford, owned several large tracts on the banks of the Manatee; Mr. J. H. Hobbs, a Virginia capitalist, from Wheeling, also owns some land here. The Florida land boom has not yet reached the Gulf coast, but it is creeping over. Last fall it got to Tampa, 30 miles from here, when the railroad was completed to that place. When it does come, and some New Yorkers come over here and break the way, people will wonder why they didn't come here long ago, and it will be a cold day for the St. John's River bonanzas. The soil is not as good here as it is along the St. John's. There is no use of any land-owner contesting this fact. But everybody who is acquainted with tropical countries know that rich soil means fever and sickness, and that sandy soil is a guarantee of healthfulness. This rule holds good throughout the entire West Indies. Cuba,

Jamaica, and a narrow strip of Mexico lying along the Gulf have as rich soils as any countries in the world, and they are full of deadly fevers. The only healthy West India islands are the rocky and comparatively sterile ones. There are spots of rich soil here sufficient for gardening and orange groves, good pieces of "hammock land," as the natives call it, but the great bulk of the soil is sandy. There is plenty of health here, and consequently happiness. You get up before sunrise, you go to bed soon after dark, you go to the table every time with the appetite of a shark, and you wonder what in the world it is that makes you feel so well. I never saw or heard of this country till two weeks ago. It may be a disgrace either to my old schoolmasters or to me, but I don't think that until two weeks ago I had ever even heard the name of Palma Sola, or Charlotte Harbor. It was good fortune (and the yacht Mallory) that brought me here, for after visiting nearly all the warm countries frequented by Americans—Cuba, Mexico, Bermuda, Yucatan, Texas, Louisiana, and many of the smaller West India islands —I like the west coast of Florida best of all.

W. D.

THE FISHING IN FLORIDA.

EXPLORATIONS ON A DESERT ISLAND.

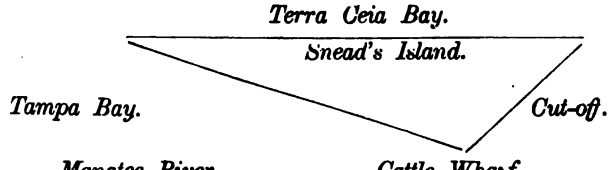
THE CHARGE OF THE FRIGHTENED FIDDLERS—A DESPERATE ENCOUNTER WITH A SHEEPSHEAD—INDIAN MOUNDS AND PALMETTO HOUSES.

PALMA SOLA, Fla., Feb. 23.—Somewhere in the dim past I remember a schoolmaster telling me that knowledge is of two kinds—that which you have and that which you know where to get. On the same principle boats are of two kinds—those that you have and those that you know where to borrow. By this generous rule our fleet at Palma Sola consists of three boats. First, there is Mr. Curtis's little skiff, very sharp and narrow, barely large enough to carry one fat man or two lean ones; Landlord Scott's boat, that on moonlight evenings sometimes carries a good round dozen of passengers up the river on a picnic, and Mr. Warner's row-boat, large but light and very easily handled. One of these three is always to be obtained, and there is never any lack of boats. A man might as well be out on the plains without a horse as to be in Palma Sola without a boat. The river is the great highway leading to every place worth going to, and all communication is by water. This is a very different state of affairs from what it would be in the North, where ice would obstruct the way through half the year; for here on Christmas morning, or any other morning, if rowing proves too warm you can roll overboard and take a swim. A new-comer is naturally a little timid about swimming among the sharks and alligators, which are supposed to inhabit the waters; but the peaceable habits of these beasts are shown by

the fact that the natives bathe in the deepest water without being harmed. On my first morning in Manatee County I borrowed Mr. Curtis's little boat and pulled over to have a look at Snead's Island, just across the river, and as this was the first of my excursions by water around Palma Sola, and as each trip offered many novel features of its own that must not be confounded with any other trip, I will set them out in chapters by themselves, like the seven voyages of Sindbad the Sailor. For I am surrounded with such an atmosphere of sheepshead, row-boats, alligators, and trolling-lines it will require the greatest care to keep them from getting all in a tangle.

AMONG THE FIDDLERS.

Shirt, trousers, and hat are all the clothes a man wants to go fishing in here in the middle of winter, and the thinner they are the better. With garments that will not be injured by being wet, and with pantaloons rolled up above the knees, the fisherman is ready for business, for Florida waters are full of sand bars, and it is often necessary to step out of the boat and pull her along. Snead's Island is about two miles long and perhaps half a mile wide in the broadest part. You could make a very good outline of it by setting down on the top of a triangle so as to mash it out of shape, and flatten down the point. One end of the island, a sharp, sandy point, projects into Tampa Bay. The other end, also a sharp point, is at the "cut-off," which connects Terra Ceia Bay and the Manatee River. A little to the right of the middle the island widens into a third point, which projects into the river. Terra Ceia Bay is behind the island and the Manatee River is in front of it. But three lines will make a map of it which will tell the story better than words :



Along the entire front of the island, from Tampa Bay to the cut-off, is a white-sand beach, with a fringe of shells beautiful to look at and grand for bathing purposes. At the point where the cattle wharf is the water is so deep that the largest ships can go up to it. From the wharf to the cut-off the shore is lined with a thick growth of mangrove trees, with only here and there a little opening. I headed my boat for the cattle wharf, which is directly opposite Palma Sola, the river here being about a mile wide, and then paddled along shore, enjoying the dark-green mangrove trees, the white-sand bottom under the clear water, and the occasional wreck of a schooner or oyster boat half buried in the beach. I came upon a place where there was an opening among the trees, disclosing a broad strip of land covered with scrub palmettoes, and beyond this a cluster of tall pines, each tree long and straight enough to make a flag-staff. Here I determined to land, to have a look at the island, and headed my boat for the shore. When she was 20 or 30 feet from the beach her nose ran into the sand, and I had to step out and shove her along. But that didn't matter, for my shoes and stockings were under the stern seat, and the water was warm and pleasant. Tying the painter to the descending branch of a mangrove tree, I made my way carefully through the trees to a strip of smooth sand that lay beyond, exercising great skill in dodging the sharp shells that lay all about and the pointed ends of mangrove sprouts, not more than three inches high, that were growing everywhere. There was not a house nor a living being in sight—nothing to be seen but mangroves, palmettoes, pines and sand, with occasionally a bunch of oysters sticking to the roots of a tree down at the water's edge. It was such a jungle that I involuntarily picked up a stick to defend myself against any stray tigers or panthers that might come along, and started up the coast barefooted to have a look at the soil. I found it principally sand, with a rich topping of decayed vegetable matter sufficient to make it productive.

I was just about to return to the boat to continue my voyage when I was startled by a rustling in the creeping plants through which I was walking. One hears so many snake stories in

Florida my first thought was of them; but there was no snake in sight. The rushing, however, continued and grew louder. It was like a flock of frightened birds trying to make their way through a thicket, but there were no birds in sight. The noise came nearer to me, and I ran out to the strip of sand that lay between the bushes and the mangrove trees. I was hardly there before the cause of the racket came along to, crossed the sand, and made for the roots of the mangroves. It was an army of black bugs, each from an inch to two inches long and half as wide. They were so thick that the ground was black with them, for they were black, or nearly black, with thick legs, and traveled over the ground about as fast as a man could run. There were millions and millions of them; I might say billions, and then not come within a few millions of the true number. But there were so many at any rate that they shook all the bushes, and made a noise like a rustling wind. I was freshly out of Arkansaw, where I had spent a considerable portion of my time in dodging the deadly tarantulas, and these beasts looked very much like them, so I thought of tarantulas. I was barefooted, and they were crawling over my feet. With great deliberation I concluded to leave that part of the country. Under the circumstances I consider half a second "great deliberation," and at the end of that time I made my first deliberate and dignified move, which was a jump of about 15 feet, and then calmly walked the rest of the way down to the beach, seven or eight feet to the step, walking over and crushing a few thousand of the little wretches every time I put down a foot. The black space covered by the beasts was at least a quarter of an acre in extent, and I fooled away no time in getting out of it and reaching the beach. The bugs were frightened to death by the noise I had been making in the bushes and were trying their level best to reach their holes among the roots of the mangrove trees; and I was scared by the bugs; so with mutually trying to get away from each other we had a lively time. If I had had shoes on I think I might possibly have staid and made a fight of it. But being barefooted in the bushes makes a man timid here among the spiders and snakes and 'gators.

After rowing up into the "cut-off," and finding it very

narrow and tortuous, lined with mangrove trees, their roots covered with oysters, and with wild ducks and blue heron in great abundance, I pulled up on the shore, around another point, and discovered a romantic little house in the midst of the palmettos, almost hidden in the verdure. It was evidently a fisherman's place, and I was thinking of paying it a visit, when I saw two or three naked children in swimming, which so shocked me that I headed the boat for home and soon reached the hotel. Of course, I had to find Mr. Curtis, and tell him of my encounter with the bugs.

"Why," said he "they are fiddlers—fiddler crabs. They're just what I've been looking for; the best bait in the world. I know there must be sheepshead around that old cattle wharf. Suppose we go and get some fiddlers this afternoon, and try for the sheepshead."

"Agreed."

UNDER THE CATTLE WHARF.

Provided with a light wooden box, with a cover hung on leather hinges, we started immediately after dinner for my newly discovered fiddler ground, Mr. Curtis in his little skiff and I in Landlord Scott's boat. The fiddlers were not out in such large numbers as in the morning, but still there were plenty of them, and we soon had enough. We first put a quantity of moist sand in the box, and then "scooped" up the beasts with our hands wherever we could find them. They are harmless enough, except that if they catch your hand just right they can give you a pretty hard pinch with their principal claw, and in handling single specimens you have to pick them up with thumb and forefinger in such a way as to hold their claws down, like holding a bird across the back and pinioning his wings. When we had enough for the afternoon's use we started for the cattle wharf and were soon there, wind and tide being in our favor. We pulled our boats up on the sandy beach, got out our lines and went out to the end of the wharf, which is soon to be replaced by a new one, being shaky with age and the spiles incrusted with barnacles. To a new

hand at the business picking up the fiddlers to bait the hooks was not nice work at first. They look like dirty young lobsters, and are not at all inviting, but it soon became easy enough, and we let our lines drop among the sunken spiles. It was soon evident that our sinkers were not heavy enough to combat the strong tide, and we pulled a lot of rusty spikes out of the rotten wharf, and tied them to some of the lines. After two or three minutes of anxious expectancy Mr. Curtis pulled in a beautiful sheepshead, weighing four or five pounds. This feat he followed soon after by catching a channel bass, not less than 2 feet in length. All this time my line was hanging in the water like a broken fiddle-string, and not a fish came near it. I put on a cheerful face and said something about its being "my turn next," but inwardly I felt sure that my old fishing luck would stick to me, and that I would have all the expectation and my partner all the fish. Presently I got into my boat and rowed out among the spiles, and braced the boat between two of them, to give the fish every chance in the world to eat my fiddler. But they spurned him, and I had not even a bite. Mr. Curtis had bite after bite and soon pulled in another sheepshead. Half an hour had passed and I had never a nibble, and was disgusted and tied my line to one of the posts and rowed up the beach to have a swim. This took at least half an hour, and when I got back Mr. Curtis had four sheepsheads and the channel bass. I was envious, but still disgusted, and started to pull in my line. It pulled hard. I gave it a jerk, thinking the hook was caught in one of the posts, and felt it give. I could hardly believe it, but there was certainly a fish on the hook. When he came to the surface he proved to be a fine big sheepshead, not less than a five-pounder, and the biggest we had seen yet. I hoisted him out of the water and he fought like a tiger. I had him in the bottom of the boat once and he got up and fought me again, and I think would certainly have got away, but I put out my left hand and grabbed him. Sheepshead, as you may know, have a row of "spines" along their back that they raise when excited and that are as sharp as needles. He set these to work at me and gave me a series of cuts across the hand that I still carry and

that soon covered me with blood. I pulled him back into the boat, but it was still a pretty even battle till I got hold of a small piece of board that lay in the bottom of the boat and pounded him over the nose with it till he took no more interest in fiddlers. Even after this he continued to fight me, and I had to pull up one of the seats and lay it on top of him and sit down on it. Ten minutes afterward, when I uncovered him to inquire after his health, he fought me again, though his nose was all battered in and he must have had a sprained wrist. Fishermen who like to catch "gamey" fish will be fully satisfied with these Florida sheepshead.

The capture of this big fellow was, of course, an encouragement to me, and I brought down more fiddlers and kept at work. At last I had "struck my gait," for I could not get my hook baited fast enough. It was no sooner in the water than some big sheepshead seized it and I pulled him in, and they all fought me just like the first one. I was barefooted and could not put my foot on them to hold them, but I made a practice of battering them over the nose with my board as fast as they came in and then covering them with the seat and sitting on them. They took our fiddlers very fast, and, at length, we ran out of bait and had to go home to supper. When we wound up our lines Mr. Curtis had 11 sheepshead and 1 channel bass, and I had 9 sheepshead—the sheepshead averaging from three to five pounds each. More than satisfied with the afternoon's work, we took a drink and started for home; not out of the traditional flask that fishermen are supposed to carry, but out of the "water-monkey," full of pure spring water. The water-monkey is a very useful tropical institution, something like a big earthen jug, but slightly different in shape, and nobody goes out for a day's boating without one. You put your "monkey" in a shady place, where the breeze can strike it, and the water keeps as cool as if just out of the spring. If you are thoughtful you put a few lumps of sugar in your pocket from the hotel sugar-bowl, and as you can stop almost anywhere and pick fresh limes, you have all the materials for the most refreshing drink to be made on a hot day. Our 20 sheepshead supplied the hotel table for several days, though we all ate

largely of them, for the sheepshead is the most delicious fish caught in any water, with the possible exception of the pompano.

That evening, I fear, we made a slight crack in the truth. All the stay-at-home guests in the hotel were astonished at what they called "our luck" (we called it our skill), and wanted to know where we caught them. But we had discovered a fine fishing-ground and were not disposed to take the public into our confidence, so we told them "over in Terra Ceia Bay," "in the Cut Off," and in a dozen places we had not visited. But these answers did them just as well as the truth and gratified their curiosity. Then followed a grand finale for such a day's sport—a hearty supper, two pipes, and nine hours of sound sleep.

AT PALMETTO POINT.

Palmetto Point is a place not to be found on the maps. The point is there, just where the Manatee River runs into Tampa Bay, on the side nearest the Gulf; but it has no name and I have given it this name because there are on the point several palmetto houses, used by the fishermen who draw their seines there. We were told about these palmetto houses at the hotel, and one morning Mr. Curtis and I started out to visit them—he in his skiff and I in Mr. Warner's row-boat. Just around the point from the fishery, facing on Tampa Bay, is a very large Indian shell mound, where curious shells and pieces of Indian stoneware are found, and we could go to both places at the same time. We passed on the way down my own private bathing ground, which I claim by right of discovery. This is a smooth, sloping beach of beautiful white sand not 200 yards from the hotel, so nicely protected by a high bluff that you can go there at any hour of any day in the year and enjoy a bath in the greatest privacy, with the warm sun beating down upon you, and have the water any depth you want it, from 2 inches to 50 feet. We went around the point first, past the fishery, and landed at the shell mound and climbed the steep part to its top. It is 30 or 40 feet high, built entirely of shells that have lain here so long that the outer ones have crumbled to

pieces, and the whole surface is covered with vegetation. Like all the other shell mounds, it has a large tree growing out of its summit. These shell mounds are counted among the curiosities of Florida. There are large numbers of them throughout the State, and a great many in Manatee County. Opinions differ as to what they are, and how they got here. They vary in size from a few feet in diameter to a quarter of an acre, and from 10 to 40 feet in height. They are made of oyster shells, clam shells, conch shells, and the shells of all the water-drinking beasts that frequent these waters. Some people think they were washed up by the eddying tides; but Mr. Warner, who has given some attention to the matter, gave me an explanation of them that seems very reasonable. He pointed out the curious fact that every conch shell in the mounds has a small hole drilled in its side in just about the same position as if it had been made to draw the animal out of his shell. His theory is that the Indians gathered at these places on state occasions to hold their feasts, and that these shells are the remains. I have not heard of anything of interest being found in them beyond a few arrow-heads and some rude bits of Indian pottery. I am carefully saving a curious arrow-head we picked up on the beach made out of an enormous shark's tooth, which from long exposure to the air and water has turned into a substance resembling stone. It is reasonable to think that the Indians had some good way of getting the conch out of his shell, for it is no easy matter. The modern way is to stick a fish-hook in the animal and hang him to the limb of a tree. As his muscles weaken he comes out inch by inch, and the process takes two or three days. It is a cruel practice, and takes a hard-hearted person to do it. I know a lady who found a handsome conch-shell on the beach, with the living animal inside of it, and hung him up to a lime tree in the back yard. In the evening she went out to look at him, and he was just beginning to come out. She went to bed and dreamed that the conch had got out of his shell and was crawling up on the bed to bite her. This so alarmed her that she went out in the middle of the night, took out the hook and threw the conch overboard, and a fine story that conch had to tell his companions when he got back,

but of course none of them would believe him. However, whether the Indians opened the oysters and killed the conchs, or whether the conchs killed the Indians and ate the oysters, or the clams ate the conchs and killed the oysters, the mounds are here just the same, and they are almost the only high points in this part of Florida. This one near Palmetto Point is just at the water's edge, and a high tide frequently washes out peculiar shells and bits of queer Indian pottery. From the quantity of broken Indian jugs found in all these mounds, I think the Indians after finishing their feasts must have wound up with a grand spree and broken all their crockery. There is a fine view of Tampa Bay and the Egmont Lighthouse from this large mound, and all the steamers that go into Palma Sola have to go directly by it. While Mr. Curtis was admiring the mound and looking for shells I took my boat and went down the coast, out toward the Gulf. I rowed past a large number of mangrove islands, almost around to Palma Sola Bay. The water was so clear I could see thousands of fish, and there were enough birds around to start a museum. Some of them were of great size, and they were all so tame that I could row almost up to them as they sat on the water without frightening them. One old fellow in particular was so big that at first I thought he was a hogshead floating, and so tame that I was within a dozen yards of him before he took wing. He was fully as large as four big turkeys put together, and looked something like a man with wings, only his nose was rather too large, being something like 8 or 10 inches long. I rowed back to the mound and joined Mr. Curtis, and together we visited Palmetto Point, where the palmetto houses are. There are four of these buildings, each as large as an ordinary house, and all built entirely of palmetto—roof and walls—without a nail in any of them. The fishermen use them for drying, cleaning, and curing houses, and very good houses they make. To build such a house the builder goes into the woods and cuts such poles as he wants, of a length to suit his building, and ties them together with cords, making a frame-work to hang his palmettoes on. The palmetto leaves are then tied in place, layer upon layer, like shingles, making a thatch that no rain can beat through nor no heat or cold can penetrate.

Such a house cost just the price of the cord and the labor, and lasts 15 or 20 years. Each of these houses had a smooth, white, sand floor, and any one of them would make a comfortable dwelling. In front of them, at the point, the bank runs down so suddenly that a ship drawing 20 feet of water could come up within six feet of the shore. When we reached home again after a long pull against a strong head wind we were just in time for dinner, and just in time to meet Mr. Warner with an invitation to go up the river with him next day in his steam launch to shoot alligators—an invitation that of course we gladly accepted. W. D.

AMONG THE ALLIGATORS.

TWENTY-FIVE MILES UP THE MANATEE RIVER.

PALMA SOLA, Fla., Feb. 25.—I had long desired to see a real live and lively alligator. Not a puny orphan, such as one sometimes sees shedding tears in an aquarium; nor down-hearted beasts like those in the tank at the New Orleans Spanish Fort; but an alligator on his native heath, looking for prey. They had been promised in the trip down the Red River, but the weather was too cold, and there was not one in sight. Then they told us that the bayou at Palma Sola was a great place for them, and we looked expectantly behind every bush, but without results. This trip with Mr. Warner in his steam-launch Alice, however, was to be up the Manatee River, "right into the alligator country." We might even see and kill a manatee, or sea-cow, though the chances of this were somewhat doubtful, as it is 10 years or more since one has been killed here. But alligators were to be so thick "you can't throw a stone against the bank without hitting one, Sir!" And this was true enough; not because of the number of alligators, but because there are no stones in this part of the world. I could not fairly realize this queer fact till the day that Mr. Curtis and I were fishing off the cattle wharf. Our sinkers were too light, and I volunteered to go ashore and get some stones. But I searched the beach in vain; there was not even a pebble—nothing but shells and sand. Mr. Warner was about to make a trip to his lumber camp at Fort Hamer, 15 miles or so up the river, and intended afterwards to go still further up the stream, and he kindly invited all the guests in the hotel to go with him. We numbered just eight in the hotel at that time, including three ladies. There were Mr.

and Mrs. Curtis, a young gentleman waiting for a chance to get to Sarasota, and a Mr. Ingersoll and his party of two ladies and a colored man servant, from somewhere in the Northwest. Mr. Ingersoll had arrived at the hotel a few days before with such a stock of tents and sheet-iron stoves and trunks and gun cases, and fishing-tackle, he looked like a May moving in New York. He had chartered a boat at Cedar Keys, and was waiting for it to come along and take him and his party down the coast to Sarasota, or Charlotte Harbor, or anywhere the wind listed—"anywhere, by —," as he eloquently expressed it, "where the weather's warm!" He had just come out of a temperature of 20° below zero in the North, and was not yet thawed out, so he still wore an overcoat and gloves; while the rest of us were sweltering in the thinnest linen. Mr. Ingersoll is a character, and this is my excuse for making public property of him, and trying to photograph him—a character of a kind you never meet at the fashionable resorts on the St. John's, and run across only seldom here on the wilder west coast. He is a leviathan, to begin with; weighing somewhere in the neighborhood of 300, and is always careful about trusting his weight in a small boat. He had not been here 12 hours before he had all the mechanics in the place at work for him, adding to his stock of camping materials. The carpenter was chartered to make him a fish-trap and a lot of tent-pins, the sail-maker to make him a new tent, and the blacksmith to make him a shark hook, with a chain 6 feet long. He stored his property in a little building near the hotel, and, from a moment's visit to the place yesterday, I can remember a large tent with iron-bound poles, three trunks, a sheet iron stove, a lot of camp stools, three guns, and several large boxes. There were also the remains of a Dutch oven, which had been broken in transit, and this accident nearly broke Mr. Ingersoll's heart. He set out one morning to find another, and scoured the whole country, and at last came back with one—a second hand one, which he had bought at some farm house. His man told me that this assortment of goods was only a few odd bits selected from a large roomful of hunting and camping equipage, and it was currently reported that the total result of his nine winters of shooting in Florida was one tame duck, but

this may have been a libel. His enthusiasm, at any rate, is in proportion to his weight, and he started on the alligator trip with a rifle and a trolling line, and half a bushel of crackers for lunch. But they did better for us than this at the hotel, and put up a substantial dinner; and by 10 o'clock in the morning we were off. The deck of the launch was about six feet below the level of the wharf, and perhaps the liveliest part of the day's sport was seeing Mr. Ingersoll get aboard. It reminded me of the old school-book story of the elephant crossing a bridge—putting one foot on it carefully first, shaking it, and then drawing back and shaking his head. Mr. Ingersoll was sure at first that the Alice would not support his weight; then he was satisfied that he never could get down to her, and at last he gritted his teeth and swung himself carefully over the edge of the wharf.

"Now four or five of you," he shouted, "get down there astern, while I drop on the forward deck."

We obeyed his instructions, and he came safely aboard and we were off. The Alice is a handsome little launch, drawing 4 or 5 feet of water, with a cabin and a cockpit aft, the engine and boiler amidships, and the pilot-house in a sort of well, with a roof over it, so that the man at the wheel stands on a level several feet lower than the deck. In front of this is a small forward deck. We steamed up the river without incident past Braidentown, Fogartyville and Manatee, and reached Fort Hamer, where we were to make a stop, without seeing any alligators. Mr. Curtis and Mr. Ingersoll put out a trolling line, but up to this point did not catch any fish. At Fort Hamer several men were watching for us on the river bank, among them the foreman of the loggers, who had come down from the camp several miles in the interior, and thus saved us considerable delay. I looked around for the fort, but saw nothing of it. There was not a building of any kind in sight. Upon making inquiries I learned that the fort disappeared many years ago, soon after the close of the Indian wars, and that its title now sticks to the place only by courtesy. This is the case with all the Florida forts, so I hear. Looking on the Florida map you see a large number of little crosses scattered about the State

and each cross is supposed to represent a fort. But the forts, like the Indians, have disappeared, and there is nothing left but their names. As we were about to re-embark at Fort Hamer, to continue our journey, Mr. Warner sniffed the air and said that there was either a rattlesnake or an alligator about, as he smelled the peculiar musky scent that attaches to both. But we saw neither, and went on. Above Fort Hamer the Manatee River narrows down into a little stream and the water looks black. As the sun had now been up long enough to make the ground warm we were told that we might expect to see alligators at any minute. I stationed myself on the forward deck armed with a large 38-calibre revolver, and I had to lie down flat, so that the pilot could see over me. In the pilot-house with Mr. Warner were Mr. Ingersoll's two ladies, who were enjoying the novelty of the scenery. We were hardly a mile above the fort before Mr. Warner shouted:

"There's an alligator on the right bank!"

Sure enough, there he sat, a big fellow, sunning himself among the tall grass, which he had trampled down. We were too far from him to expect to hit him with a revolver, but I dropped a ball over in his direction, and he lost no time in slipping into the water. We were close to the left bank, and in a minute more I saw an immense fellow there, directly opposite us, not more than 20 feet away. Even at this short range I had not much hope of hitting him in any vulnerable part with a revolver, but thought I might tickle him a little. Only by putting a ball into one of his eyes or directly behind one of his front legs could I hope to kill him. But I let fly on general principles and had better luck than I expected. The 'gator rolled half over, recovered himself and slid off the bank into the water. He headed directly for the launch, and in less than five seconds was within three or four feet of us. The two ladies in the pilot-house thought he intended to climb aboard, and indeed it did look very much like it. They set up a scream that was enough to frighten an alligator to death and made a scramble for the door on the opposite side, where, in trying to get through both together, they stuck, and the sudden shifting of cargo nearly capsized the launch. The

alligator, when his slimy head was nearly against the boat's side, let himself sink and disappeared and we saw him no more. From this time forward, all the way up the river, alligators were quite as thick as we had been told. There was some sport in firing at them and making the big rascals get up and run, even with slim chances of hitting them. At a very moderate estimate we saw two or three hundred alligators on this trip. Most of them were very large ones and looked as if they could make a brave fight. It is a common saying that they will run away from a white man, but stay and fight a negro; how much truth there may be in it I do not know. The natives here seem to have no fear of them, but when they come in the way take a fence-rail or a club and drive them off. There is hardly anything to keep them from multiplying, for people do not take the trouble to kill them, except such visitors as go out and shoot them for fun. Some tender-hearted people who have never seen an alligator may think it cruel fun to go out and shoot them uselessly. But if they should see one they would change their minds. Just as everybody hates a snake, or as sailors hate sharks, so there is a natural feeling against alligators; and the first thought upon seeing one is to kill him; unless, indeed, you are a little timid and first think of getting away from him. They look very much like big snakes; and I venture to say that even Mr. Henry Bergh, sailing up the Manatee River with a rifle in his hands, would blaze away at the first 'gator he saw.

I had the alligator field all to myself, for just as we got into the thickest of them the fish began to bite, and all the other gentlemen gave their attention to trolling. We had only two lines along, but these two kept the other three gentlemen busy, for the fish bit as fast as they could get the lines out, and in a short time the cock-pit was so full of them the fishermen had to stand up on the seats. They were fine large fish, locally known as "Jacks." I do not know their proper name, but they were from two to two and a half feet long, weighing from four to eight pounds each, with a forked tail looking very much like that of a mackerel. It was no easy work hauling in such big fellows, and before long all the fishermen were complaining

of sore hands. I had already put my hands in such a condition that nothing could make them worse, having worn them into holes with pulling in fish and hacked and hewed them w i knives, so I was able to listen to these complaints with the air of a veteran, merely giving the same humane advice that was given me, to wash each fresh cut in salt water "to take the poison out." This, of course, smarts so that it keeps a man dancing a hornpipe for half an hour. As we approached Manatee on the homeward trip we saw a flock of ducks sitting on the water. Mr. Warner headed the boat for them and Mr. Ingersoll brought out his shot-gun. The latter was already in a state of enthusiastic excitement over the fishing, and he hoped to add a new leaf to his laurel wreath by bringing down a duck. He immediately went through the interesting performance usual to city sportsmen. The gun was in a heavy leather case, which had to be unstrapped. Then it was in several pieces, which had to be put together. The cartridges were in another case, which also had to be unstrapped, and by the time he had looked down the barrel to see that no eels or snakes had crawled in, examined the hammer, and put in the cartridge, the ducks might have been a mile away if they had known anything. But they were foolish ducks, or perhaps they knew Mr. Ingersoll, and had confidence in his inability to hit them, so they sat still. The boat continued to approach them, and he fired before they rose, and then they took the hint and flew away, every one of them. Mr. Ingersoll was explaining that he knew they were out of range, when one of them unexpectedly dropped, and we went over to it and gathered it in. The young man, who was on his way to Sarasota whispered to me that there never was a bigger surprised man in the world than Mr. Ingersoll when that duck dropped; but he wiped his gun with great complacency, and put it away with the air of a man who has done his whole duty. The sun was well down by this time, and we reached home by moonlight and went into the store and got two large gunny bags to carry the fish up to the hotel. It took four men to carry them. This is not a fish story, but solid truth.

One day soon after the alligator hunt Mr. Curtis and I or-

ganized an excursion to Egmont Key, to visit the light-house. The Key is 10 or 12 miles away, about the centre of the mouth of Tampa Bay, and we chartered a good-sized sloop, manned by a jolly old Welsh tar with a very red face. The party consisted of Mr. and Mrs. Curtis, Mrs. Scott, our landlady, and myself. Such a move as this in picnicking is worth the genius of Jay Gould, for, by taking your landlady along, you at once "make yourself solid" with the hotel, and need have no fear of a vacuum in the lunch-basket. With a great water-monkey full of cool water, a good store of limes and sugar, and a fat basket just full of pies and sandwiches, eggs and tarts, guava jelly and light biscuits, to say nothing of a little "filling-in" of crackers and cheese; with a good boat, a good crew, a fair wind, and a bright, sunshiny day, we had everything to make us happy. The boat had no cabin, but a large cock-pit, and some old sails spread on the floor of this made us comfortable seats. The wind, indeed, was a little too fresh, blowing so hard that we received several warnings that we had better not start. But we were in for it and bound to go; so Landlord Scott's boat was hitched behind for a tender, and we set sail. I flatter myself that it was I who insisted upon taking the small boat along, somewhat contrary to the desires of the rest of the party; for, as it turned out, the row-boat was all that saved us from having to spend the night upon the briny deep. We started for the mouth of the river at a lively rate, and began to think we were going to get a wetting outside, but while we were talking about it the wind suddenly died out and left us drifting lazily into Tampa Bay. Within five minutes the weather changed from a stiff breeze into almost a dead calm. Our jolly old tar told us there was no use trying to reach Egmont Light; that it would take us all day to get there, with no telling when we would get back. But couldn't we go somewhere else? This is one of the beauties always attending a trip in a sail-boat. Very likely you won't get to the place you start for, but you can go somewhere else. Wherever the wind directs, that must be your destination. Some of the party had never been in Terra Ceia Bay, and the rest of us wanted to see more of it, and we asked the tar whether he

could take us there. Yes, he thought he could beat into Terra Ceia Bay, and immediately set about it. It was slow work, making our way into it, and seemed to me to occupy five or six hours, though it really was not more than an hour or two. The time seemed so long, not because drifting before this light breeze and lounging on the warm sails and puffing at a pipe was not pleasant, but because I had a longing eye on the dinner-basket. I proposed at one point that we should eat, but the rest of the party scorned such a proposition, and the ladies said we ought not to eat "before we were in Terra Ceia Bay, anyhow." So I waited patiently for the old ship to drift into our dining-room. When she did at last get there our appetites were up to the razor-edge stage, and we enjoyed the boiled eggs and the beautiful scenery together. Terra Ceia Bay is a peculiar piece of water, suddenly spreading out into a broad lake, as suddenly contracting into a narrow channel, and then widening out again. At the end of it nearest Tampa Bay its shores are lined with broad belts of mangrove trees, whose foliage is so thick and green that they look like beautifully sloping lawns. The whole bay is dotted with mangrove islands, each island a dark green dome. I have never seen anything like it anywhere, and its very novelty makes it attractive. It is somewhat as if all the Thousand Islands in the St. Lawrence were covered with thick green foliage. You sail up before an apparently unbroken line of these islands, and it looks as if you were going straight ashore, but your bold navigator finds an opening, takes the boat through it, and you are in another big bay, larger than the first, and have to make another such manœuvre to get out of it, and unexpectedly find yourself in a third open place; so you keep along for miles. Luckily for us we were not lost in this part of the bay, as we soon afterward were in a part we were better acquainted with, or we might yet be subsisting on mangrove oysters and palmetto cabbages, and I doubt whether we would ever have found our way out. We sailed on, very slowly and comfortably, till we were near what I should take to be the upper end of the bay, within sight of a number of houses on the shore. The sailor

told us who lived in them, and said that one of the places belonged to Howard & Kennedy, who recently bought some land here, and began market-gardening on a large scale. We all had some curiosity to see a Florida market-garden, and it was unanimously decided to pay Messrs. Howard & Kennedy a visit. The wind had come up again into something like its former glory, and when we dropped anchor in front of the place there were white-caps on the beach. We saw before us a handsome place, with a long stretch of fencing, a comfortable dwelling-house, and down by the water a novelty that at once attracted our attention—a roof of palmetto thatch, supported at the corners by four large palmetto trees, and without walls. In this climate such a house answers every purpose for a barn, or any out-building, and is at once cheap, durable, and handsome. There were a number of small boats at anchor in front of the place, and what we could see of it from the water made us all anxious to pay it a visit. We embarked in our row-boat—we four passengers—and were soon disappointed to find that we could not approach within 50 yards of the shore on account of the shallow water. It was out of the question to carry the two ladies over this gap; so, after trying in vain to find deep water at several places, we were compelled to give it up, and went back to the sloop. When we reached her we found her hard and fast aground. But our gallant crew did not mind a little thing like this; he quietly stepped overboard into water nearly waist deep, shoved the sloop further away from shore, and helped us aboard. As we were 10 or 15 miles away from home, and the afternoon was rapidly wearing itself away, we voted to start for Palma Sola, but this was a matter entirely beyond our reach. The second spurt of wind had died out, and we were once more becalmed. There was indeed enough breeze left to carry us along at the rate of about a mile an hour, but this was tedious work, and bade fair to keep us out till late at night. In an hour or two, after we had progressed a mile or two, I grew tired of such monotonous business, and stepped into the skiff and started off alone for a row. The sun was just about to set, and millions and millions of birds that occupy cheap lodgings on the islands of Terra Ceia Bay were

taking the rapid transit line for home. I should be almost afraid to say anything definite about the numbers of birds I saw, ducks, gulls, herons and many kinds that were strange to me, for it might strain the reader's imagination after the true fish stories I have told. But it is no exaggeration, at any rate, to say that there were a thousand times as many as all the rest I ever saw in my life. They came home in long strings, V shaped, so long that sometimes the ends of the V were lost in the horizon. In one of these rows I counted 700 birds, but as there were still several miles more of them I gave it up. There was a curious-looking bit of shore, not far away, lined with big palmetto trees, and I rowed over to it. As the sun went down entirely, and darkness began to make itself visible, the drum-fish came out of their lairs and played their melancholy tunes under my boat's bottom. They sounded, at least, as if they were under the boat, but I was not able to make them out. As the darkness increased their sound was so funereal that it almost frightened me. They are well named, for nothing could better describe their noise than to say that it sounds like a big bass drum struck under water. I don't know whether it was the same fish following my boat, but imagined that it was, and he kept good time with me, letting me take about three strokes, and then coming in with his bass "boom." Occasionally some other drum-fish would join in, but generally my own private drummer had the field to himself. I had noticed, while it was lighter, that a long narrow fish of a peculiar shape was following the stern of my boat. I had struck at him several times with an oar, but he merely dodged, and continued to follow me. The water, too, was becoming phosphorescent in the dark, and at every stroke my ores splashed fire. So with the knowledge that the long, narrow fish was keeping up his surveillance over me, with the drums beating under my boat, and the water in a blaze on both sides, I confess that I felt more comfortable to head my skiff for the sloop; I didn't know but the next thing might be a water-spout or a great whirlpool, there seemed to be so many strange creatures in these Florida waters. The fish that followed by boat looked suspiciously like the "pilot fish" that precedes a shark. Getting

back to the sloop just before dark I found the party in no wise alarmed, which rather surprised me, for our situation was awkward. Not that we were in any danger, but our friends in the hotel would be mourning for us. The ladies said there was no hurry, that there would be a breeze presently, so we finished the provisions in the dinner-basket, and sang a song. By that time it was genuinely dark, and the ladies began to feel uneasy. About 15 stars were out, but there was no moon. We were 12 or 15 miles from home by the way we had come, and about 3 miles by going through the "cut-off." But whether we could find the cut-off on such a dark night and pick it out from among the hundreds of false bays and inlets along the shore was a very open question. Failing to find the cut-off, we might also lose the sloop, and then we would be in a fine fix. We resolved, at all events, to take to the boat.

[I notice that writers for the weekly story papers always break off in an interesting place, and this week I must follow their illustrious example, for this letter is already far too long, and our night ride on Terra Ceia Bay is one of my pet stories, and I am going not to spoil it by cutting it off short.] W. D.

LOST ON TERRA CEIA BAY.

AN IMPROMPTU STUDY OF ASTRONOMY.

STARS WANDERING ABOUT THE SKY—HUNTING THE CUT-OFF—FISHING BY TORCHLIGHT—A VISIT TO TAMPA.

TAMPA, Fla., March 4.—We were on Terra Ceia Bay, becalmed, with a sloop and a skiff, and a very dark night had just settled down upon us. Once or twice the moon made a feeble effort to shine, but each time a bank of clouds drifted over it; perhaps a dozen stars were visible. Having determined to leave the sloop under the charge of our sailor and strike for home with the row-boat, we made preparations to start, and I was appointed navigating officer. I accepted the post with some misgivings, for it was no easy matter to find the "cut-off" on a dark night. People familiar with the Northern waters will think that, knowing the general direction, we ought to find it without trouble; but here the shores are different. Terra Ceia Bay is fringed with a thousand little bays and inlets, and each of these is heavily lined with mangrove trees, so that they all look alike. One of the small bays opens into the cut-off, and that one we had to find. If we went too far into a false channel there was a very strong likelihood that it would take us hours to find our way out again. The nearest inhabited shore was about two miles off, and there a feeble light occasionally glimmered—one solitary light, on a beach that we knew, although we could not see it, to be three or four miles long. I asked our sailor what light that was.

"That," said he, "is at old Joe Franklin's. The safest way will be for you to go straight to that shore, and then follow along the beach until you come to the cut-off. You'll never find it if you go right toward it."

The light on shore was very feeble, and occasionally we lost it entirely. I asked the sailor whether he had a lantern aboard, and he said he had. He could not leave his sloop, but had to stay with her all night, wherever he anchored. He said, however, that he was used to staying in her alone, and would not mind having his passengers leave him. I insisted upon having the lantern lighted and hoisted at the mast-head, so that whatever happened we could find our way back to the sloop. Anybody who can row a boat knows that it is impossible to keep one in a straight line at night without something for a guide, and we had no desire to spend the night rowing around in a circle. The light on shore disappeared so often it seemed likely to go out altogether, and I looked about for something else to use for a guide. Happy thought! there were the dozen stars. So many ships have been guided safe into port by them they ought surely to do a good turn to our little row-boat. But I was under a great disadvantage in trying to steer a boat by the stars, for I knew nothing whatever about astromomy, and had to invent an entire new system of my own, even to giving names to the stars, my celestial education being confined to the Dipper and the Southern Cross. By great good luck I found three trump stars almost in a straight line, and that line pointing direct from the sloop to the light on shore. What could be easier than to follow that line? I immediately named the three stars Venus, Adonis, and Gibraltar, (which I consider very neat and appropriate names), and we stepped into the boat, having first given the deserted sailor nearly all the tobacco we had and left him a supply of matches.

"Now," said Mr. Curtis to the crew, "tell us once more the exact direction of the cut-off from the sloop, will you?"

The old tar stood up on the forward deck, leaning far over, holding on to the stay, and, without saying a word, answered by pointing his hand, thus :

We left him standing so, and put off into the darkness, Mr. Curtis and I at the oars. The direction he gave us was northwest, as nearly as I could make it out. But our objective point was Joe Franklin's, where the light was, and thitherward we headed the

boat. I had a grand chart before me, composed of objects both celestial and terrestrial, very much like this :

* *The Sloop.*

* *Venus.*

* *Adonis.*

* *Gibraltar.*

*

The Light on Shore.

"How beautifully Heaven has arranged things for us navigators," I thought, "to put stars in a straight line like that. Wonder I never thought of guiding myself by them before. Why, nobody could miss his way with such a row of lanterns as that in the sky!" But I was young and fresh in the astronomical business then ; I have less faith in it now. We "rowed the boat lightly, love, over the sea," though she might have gone even more lightly if our two lady passengers had been a trifle thinner. To enliven us up a bit, we tried to start a song; but no two of us knew the same tune, and we gave it up. It was a dead still night, just such a time as the prowling drum-fish like for a stroll, and they gave us more music than we wanted. It was melancholy music, and made us wish ourselves in front of the supper table in the Palma Sola Hotel. They made a continual din in our ears, with their loud "boom," "boom," "boom." The water was full of the little insects or whatever it is that makes phosphorus, and our oars made waves of fire with every stroke. It seemed very solemn and impressive, this ride through utter darkness. One of the ladies said it was a very solemn thing to be alone thus with the Creator ; and the sacrilegious Mr. Curtis said it was deucedly more solemn to be alone without the Creator, as we seemed to be just then. However, we pulled on and on, half a mile or so, and then I took another observation, and found there had just been a celestial earthquake. The stars were all knocked out of place. My nice straight line was broken into fragments, and the stars, the sloop, and Joe Franklin's window were utterly and hopelessly mixed. Here was the beautiful chart I had to steer by on the second observation :

* *Venus.*

* *Gibraltar.*

* *Adonis.*

* *The Sloop.* * *Joe Franklin's.*

It was alarming to think how the stars had been jumbled up. I didn't mind it so much for ourselves, because the worst that was likely to happen to us was a night in a rowboat; but so many ships at sea were depending upon their being stationary and orderly there was no telling what disasters might be caused. If these three are what they call fixed stars they're very badly fixed. They put us out of our course and left us all at sea. A minute after this second observation, and before we had entirely recovered from the astonishment it caused, Joe Franklin's light disappeared, and we determined to make a bold stroke direct for the cut-off, without trying to reach the other shore. Guided only by the light at the sloop's masthead, we pulled for the cut-off, thought we had found it, rowed some distance up a little inlet, and found we were in the wrong place. We backed out, tried another inlet, and found we had made another mistake. We were lucky enough each time to be able to find our way back to the bay, but these set-backs discouraged us. "Why not land on this shore, and go to the nearest house?" perhaps somebody would ask. Because the nearest house on that side was miles and miles away, with impossibilities of mangrove swamps and pine barrens between. Tired of hunting in this wild fashion for the cut-off, we concluded to make another effort to reach Joe Franklin's, where we could at least find shelter, and perhaps procure a guide. Joe Franklin is an old colored chap who is said to have passed his hundredth birthday, and who lives with his wife (of nearly equal age) in a beautifully romantic palmetto house, surrounded by gardens and orange groves, on the back shore of Snead's Island, facing on Terra Ceia Bay. When we were once more out on the open waters of the bay, clear of the mangroves and the dark shadows of the towering palmettoes, I took another observation. Three times and out; never again will I undertake to guide anything by the stars, for I have no more faith in them; they have basely deceived me. The three planets had got up close together, as if they were holding a convention, and Joe Franklin's and the sloop were completely reversed, after this fashion:

* *Joe Franklin's.*

** *The three stars.*

* *The sloop.*

We could distinguish Joe Franklin's light from that on the sloop, because Franklin's had grown much larger and was a deeper red. For a moment, but only for a moment, we thought of pulling back to the sloop and giving it up. But we changed our minds, set up the battle-cry of "Joe Franklin's or a watery grave," and steered for the aged darky's light. We had not gone far when one of the ladies sitting in the stern seat, being able to see ahead, exclaimed:

"Why, Joe Franklin's house is moving down the beach!"

We all looked around, and so it was. The light, which was, we thought, in the window of the palmetto house, was moving down the beach and coming nearer to us. None of us were much surprised. Under ordinary circumstances we might have been; but after the way we had seen the stars shuffled about the mere moving of a small house was nothing remarkable. We continued to pull for the light, which still kept approaching us; and presently we were delighted to hear voices. They sounded like the music of the angels, and brought our courage up 50 per cent. in a minute. If Old Joe Franklin's house was moving off, somebody at any rate was in it. Louder and louder the voices grew, nearer and nearer the light came, growing every minute, till at last it was close enough for us to see that it was a great flaming torch held in the bow of a boat, and that the two occupants of the boat were spearing fish. So romantic was the scene, and so beautiful the sight, this torch lighting up the two fishermen and their boat, making a circle of light like the glare from a magic-lantern, that we enjoyed it for some time before we hailed them. They were coming in our direction, and not a minute passed but they speared one or two big fish.

"Hello-o-o!" we shouted to them; "will you tell us the way to the cut-off?"

"Just the opposite way from what you're going," one of the fishermen replied. "We're going through it, and you'd better follow us."

We followed them very willingly at an easy pace, they spearing fish all the way across the bay, for we had managed to get to the wrong side, of course, and were further away from home than when we started. At length we reached the cut-off, the fishermen

went up the river and we went down, we bade them good night, and we were soon in Palma Sola, devouring everything in the hotel pantry. As we sat on the front piazza an hour later the sound of a shrill whistle came across the water. It was our deserted sailor over on Terra Ceia Bay, blowing a great conch shell to let us know that he was still alive.

As my advent in Palma Sola was unprepared for, so my exit from it was unexpected. One of the steamers of the Tampa Company usually arrived there on Sunday afternoon and lay till Monday evening on her way to Key West. Last Sunday afternoon the steamer T. J. Cochran arrived, and went on up to Manatee to discharge and take on freight. As she was coming down the river the Alabama, of the same line, came in, and the two vessels met nearly opposite Mr. Warner's house just above the Palma Sola wharf. The Alabama signaled the Cochran to come alongside and both boats stopped. As we watched them from the front of the Palma Sola store, and as minutes grew into quarter hours and quarters into full hours, we began to wonder why they lay there so long. When we saw the Cochran send the end of a stout hawser over to the Alabama, and saw both vessels start their engines at full speed, we knew that the Alabama was aground. The wind and tide had drifted her around upon a flat, and she was hard and fast. "Served her jolly well right," was the opinion of everybody who saw her, for the two steamers had approached each other in midstream rather than have the delay and expense of going up to the wharf, when they wanted to transfer some portion of their cargo; and this was only in accordance with the usual careful management of the Tampa Steamship Company. The Cochran tugged away for an hour or two without effect, and then came down to the Palma Sola wharf to wait for the tide to rise and to unload some of her cargo. I went aboard to inquire when she would leave for Key West, and was given the startling information that it would be necessary to get aboard at once, as the Cochran, after pulling the Alabama out of the sand, would proceed to Tampa, and sail thence for Key West, but would not stop at Palma Sola on her way out; so, for Key West passengers, it was "all aboard." The distance from Palma Sola to Key West is something like 175 miles, but by this very neat and accommodating arrangement of the steamship company, it was

necessary to add a journey of 70 miles to Tampa and back. But there was no help for it, for this line has a monopoly of the west coast traffic, so I had my baggage put aboard the Cochran, and bid a reluctant adieu to Palma Sola and her good people. The Cochran steamed up the river again to the Alabama, passed her another line, and began anew the work of trying to pull her off. There were only two or three passengers aboard, and we were consoled with the information that the Cochran "would not start for a week unless she got the Alabama off." By great good luck the Alabama "came off" just before dark, and the Cochran started for Tampa. As it is just possible that some other unlucky New Yorker may be compelled to travel down the Gulf in one of the vessels of the Tampa Steamship Company, I will try to give a brief description of the T. J. Cochran, so that he will know what to expect. Upon taking hold of some loose rope and climbing aboard, as you usually have to do, you find yourself on the main deck, which is just far enough from the upper deck to allow a very short man to stand upright. A man of any reasonable height, when he goes to his berth or crawls in to his meals, has to hump his shoulders like a camel, and keep his chin well down on his chest. This fine specimen of marine architecture is of between 300 and 400 tons burden, and is very appropriately painted black. There is a general appearance and smell as if her decks and rails were greased every morning with whale-oil. The cabin passengers and the crew eat together, and the captain occasionally comes down to a meal, and sours the condensed milk with his austere and dyspeptic countenance. I very much regret that I have lost the card on which I wrote the name of this agreeable seaman, the captain of the Cochran, for it would give me pleasure to serve him up on the half-shell with all due solemnity. But nameless as he is, I confidently recommend him for the surliest, most unaccommodating officer that ever shuffled over a greasy deck. The purser and all the rest of the officers are good fellows, and they made such apologies as they dared for the remarkable conduct of the captain, who, they said, is a Norwegian, and does not know the customs of the country. There were several New Yorkers aboard, afterward, and it is very largely at their solicitation that I waste so much trouble on this captain; they all offered to wager large sums that he is the surliest man in the world, but there were no takers.

Monday morning found us at the head of Tampa Bay, at anchor, about two miles out of Tampa. The object in going so far out of the way was to lay in a supply of wood for the furnaces, for wood can be bought a few cents a cord cheaper at Tampa than at Palma Sola. The sun began to shine with a blaze like a blast-furnace, and all the tar and paint about the ship turned into liquid. Before 9 o'clock in the morning the decks blistered the feet of whoever walked over them. I was deliberating whether I should stay on board and be broiled or drop overboard and be gobbled by a shark, when the accommodating purser came to me and said:

"The captain is going ashore in the yawl. Don't you want to go up and see something of Tampa?"

All the desire I had to see Tampa would have rattled around in the eye of a needle, but the trip offered a chance of escape from the heat of the ship, and I went. The animated lump of tar and oakum that bore the captain's uniform and I occupied the stern seat, and two sailors rowed us. I immediately opened up an animated conversation with the captain. I asked him some question about Tampa, and he replied:

"Umph."

I ventured some other little remark, and again he answered:

"Umph."

The sailors looked at each other slyly, and wanted to smile. Presently we reached the mouth of the little creek on which Tampa stands, and went up past the beautiful spot lately vacated by the Government, where the barracks used to be. This place faces the bay, and has on it a small old-fashioned house, surrounded by immense trees. The Government abandoned the property for some reason or other, leaving it open for settlement under the homestead act, and half of Tampa has been fighting for it ever since, to see who shall have the plum. We were soon alongside of a rickety old wharf and made a landing by the side of a big steamboat, which proved to be an old New York acquaintance, the Eliza Hancox. The captain and his men went up the street to Miller & Henderson's store, to see about supplies for the steamer, and I sauntered along after them and went into the store, too. Miller & Henderson own the Tampa Steamship Line, a big store in Tampa, and up to this time they have practically owned the central part of the

west coast of Florida, through controlling its transportation facilities. But now that Tampa has a railroad the monopoly is broken. The railroad was opened on the very day that I reached Tampa, and everybody who owns a square inch of land is wild over the increased value of his property. Knots of men were down on their knees and haunches on the sidewalks making diagrams of their "property" and telling how much they had already been offered for their lots, and how much they expected to realize on them. There was a regular "boom" in real estate, as far as sellers were concerned, but I did not see any excited men rushing around looking for a chance to buy. It will be easy to draw a picture of Tampa. Take any little New Jersey town with 2,000 or 3,000 inhabitants and sand six inches deep in every street; put a few orange and lemon trees in the front yards, and you have Tampa. Only the temperature of the New Jersey town in August Tampa has in January and February. The heat wilted me down, the merciless sand filled my shoes, and I longed for a comfortable place to sit down and rest, but longed in vain, for the principal hotel is like a barn, and a barn that has not been cleaned for some months. There is said to be a very good hotel two or three miles out of town, built for winter visitors, but I did not go to it. I went into a drug store to make some trifling purchase, and was told by the jeweler, who occupied the other side of the room, that the druggist had gone out, and that I could get what I wanted in about an hour. I walked over the town as much as the intense heat and the deep sand would permit, and saw many cozy homesteads, surrounded by handsome yards, with plenty of oranges growing and shady nooks of verandas; some curious four-horse wagons, just in from the country, driven by equally curious natives; a great lot of Florida darkies, born with a genius for leaning against the shady side of a house and chewing tobacco. The captain's boat was not to go back to the Cochran till 8 o'clock in the evening, and before I had been in Tampa an hour I began to wonder how I could get back to the ship—which might be hot, but could not possibly be as hot as the town. Fortunately, the purser's boat, loaded with provisions, went out to the ship at 3 o'clock, and I went with her. I was in Tampa just five hours; next time I come I will not care to stay more than four hours and a half. W. D.

PALMA SOLA—FLORIDA.

Editor of the Florida Agriculturist:

Within a few months, Braidentown and Sarasota have both been heard from, but I see nothing from Palma Sola. If no one else will sing its praises I must needs do it myself.

Three years ago, where the village of Palma Sola now stands, it was, literally, a "howling wilderness." Then Messrs. Warner & Beach awoke to the fact that it was a beautiful site for a town, and presto, change, it is transformed. First began the erection of a large saw-mill, and naturally cottages for the workhands followed. Settlers began to pour in. The cottages were soon filled. Others had to be built. Then to supply the rapidly growing town, Mr. Warner erected a fine store. For weeks before it was opened we heard of nothing else. We feasted, in imagination, while listening to the accounts of the stock of groceries constantly arriving, and when the grand opening day came no one was disappointed. Everything was on a mammoth scale. But alas! for human hopes. In a few days the news flew through the country that Warner had burned out, and everything was lost. It was only too true. The store and wharf on which it stood had burned to the water's edge. Things uninjured by the fire were destroyed by the water into which they dropped. A new engine destined for the saw-mill, and which was in the warehouse, was also destroyed. No insurance. But fearful as the loss was, Palma Sola never flinched. Mr. Warner does not know the meaning of the word fail. In less than a month a new stock arrived and was put into a temporary building. Then, like the fabled Phœnix, a new store rose from the ashes of the old one. If possible, a better stock than the first one was put into this new venture. So much for the founding of the tiny city 'yclept Palma Sola. As for the location, "like a jewel on a maiden's breast," lies Palma Sola on the bank of the Manatee. Only two miles from the mouth of the river, it is plainly to be seen from Tampa Bay, and a more beautiful picture was never painted. In the background, the "forest primeval," the stately pine trees of the South. On the neck of the land extending into the river is the mill. From the mill an immense steamboat wharf extends out into the river, and on the end of this wharf is the

store, postoffice and warehouse. Back of the mill lies Palma Sola, a collection of pretty little cottages, some gothic, others simply box houses, so popular in California and Florida. All are snowy white as paint and whitewash can make them. In the center of the village—I should have written—is a large hotel, erected by Mr. Warner, and run by Mr. L. G. Jenness, the well-known hotel man —himself the proprietor of a magnificent summer hotel at Scroon Lake, Orange County, New York; his name is a guarantee that everything possible will be done for the comfort of the guests of the house. Who that has sojourned South will fail to remember the genial host of the Suwannee House in Cedar Keys, and the Russell House in Key West, both of which hotels have been under Mr. Jenness's management? The hotel itself is a large, square, frame building, furnished in the daintiest style imaginable. The view from the upper windows is simply magnificent. From the north and west windows, Egmont Key Light is plainly to be seen; looking eastward, the Manatee, one catches glimpses of Fogartyville, Braidentown, Manatee and Palmetto. The river is continually dotted with sails and tiny boats. From the south windows can be seen the piney woods. The hunting and fishing in the vicinity is very fine. Boats of all descriptions, from a schooner-rig to rowboat, can be obtained from the boat livery of the Hammatt Bros. In the distance, across the bayou, lies San Terre, the home of W. S. Warner, a house in the gothic style of architecture, surrounded by grounds of unsurpassing beauty, and a fine orange grove. At the foot of the beautiful lawn is the wharf, at the end of which lies a perfect float of pleasure boats belonging to the house, noticeable among which is the steam yacht "Alice," used occasionally in towing a raft of logs from the extensive log camps run by the mill, far up the river and adjacent creeks. I have no time to describe other homes here, but there are many beautiful ones.

To those wanting homes in South Florida, I say come and look at our little city before settling elsewhere. To the wealthy it offers many attractions. No more beautiful locations can be found anywhere for the erection of handsome homes. Land can be bought in any quantity from a city lot to a thousand acres. Mr. Warner is the agent for the Disston Land Company, and has already sold thousands of acres of land, and there are ninety thou-

sand more to be sold. To the poor man, Palma Sola offers as many attractions as the wealthy. There is work for all classes and ages, for mill hands, lumbermen, laborers, carpenters, blacksmiths, cabinet-makers. wheelwrights, for every one save physicians; we have no use for them. Wages are from $1.25 to $2.50 per day. Board can be obtained for from 40 to 50 cents per day. Houses can be rented for from $3.00 to $8.00 per month. Warner & Co. give employment to all who apply. Everything which is necessary for comfort can be obtained from the store—hardware, tinware, dry goods, furniture, groceries, jewelry, toys, everything in fact from a steamboat to a clothespin. The saw-mill is constantly turning out fine lumber, sash, shingles, doors, blinds, etc. An Episcopalian Church and a school-house are to be the next improvements. "Dost like the picture?" BOHEMIENNE.

The following article, cut from the Jacksonville *Times-Union*, will interest the Northern hotel keepers looking for statistics on Florida business. It will be understood that this record represents but a small part of the Tourist travel into the State, and is only valuable as showing the increase in the seasons named. During the season of 1883-84 the records of the railroads entering Jacksonville show the arrival of 130,000 tourists, to which might be added fully 20 per cent. for an estimate of the arrivals by the steamers and railroad lines terminating at other points in the State. When it is considered that $200 is probably a moderate estimate of the average expenditure of each one of this pleasure-seeking crowd we can well understand the activity of all business interests during the time this money is flowing in.

The Lelands, of hotel fame, have had these figures in view for some years, and Warren Leland, Jr., of the Ocean House, Long Branch, has secured a location at Palma Sola for the erection of a winter resort. The prediction is a safe one, based as it is upon the natural attractions of the place, that he will make this the "Long Branch" of Florida.

THE HOTEL BUSINESS.

AN INCREASE OF 8,281 VISITORS OVER THE SEASON LAST YEAR.

Below we give, by actual count, the total number of arrivals at the various hotels in this city keeping registers for the seasons of 1882-3 and 1883-4, including the months of October, November, December, January, February, March and April, of each year. From this report it will be seen that for each month during the season just closed there has been an increase in the number of arrivals, the total increase for the season over that of 1882-3 being 8,281. Some of the largest hotels show a falling off, and others an increase. The falling off of the number of Everett arrivals can be attributed to the decrease of the transient business caused by the close connection of the boats with the trains and the fact that that hotel closed at least two weeks earlier than last season. The falling off at the

Carleton is attributed to the fact that a restaurant has been run in connection with that hotel. and, unlike previous years, hundreds of persons took meals at the restaurant during the season without registering their names. We were unable to get the arrivals at the Carleton for the months of April, 1883-4, for the reason that the proprietors have gone North and left their register locked up in their safe, but this will not make a difference of more than five hundred for either month. Below will be found the table giving the number of arrivals at each hotel for the months specified :

HOTEL.	Season of 1882 and 1883.							
	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	Total.
Carleton	.....	191	654	1,988	1,262	1,287	.....	5,382
Duval	.....	.....	329	334	574	586	40	1,863
Everett	.....	627	1,264	1,405	1,883	2,202	813	8,194
Elmwood	.....	.....	416	386	425	387	288	1,902
Grand View	.....	.....	.....	.....	.....	.....	191	191
Jacksonville	.....	.....	.....	.....	.....	.....	.....	.....
Mattair	322	326	395	422	401	418	353	2,637
St. James	.....	.....	682	1,072	1,694	2,158	678	6,284
St. Marks	638	755	481	653	697	487	685	4,396
Sunnyside	.....	.....	.....	199	372	521	134	1,127
St. Johns	164	336	230	284	281	203	164	1,662
Tremont	.....	.....	.....	1,500	854	293	393	2,540
Windsor	.....	.....	.....	342	1,408	2,129	721	460
Totals	1,124	2,235	4,451	8,586	9,351	10,572	4,460	40,779

HOTEL.	Season of 1883 and 1884.							
	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	Total.
Carleton	.....	198	518	943	1,138	1,148	.....	3,945
Duval	.....	.....	902	685	718	700	610	3,515
Everett	.....	474	903	1,402	1,847	2,056	266	6,948
Elmwood	283	364	360	413	391	265	443	2,600
Grand View	.....	.....	.....	.....	.....	.....	1,695	1,698
Jacksonville	.....	73	578	612	716	485	396	2,860
Mattair	265	382	375	372	313	261	247	2,215
St. James	.....	.....	606	1,305	1,909	2,285	600	6,675
St. Marks	666	643	491	613	618	582	590	4,293
Sunnyside	196	502	588	615	512	569	401	3,383
St. Johns	183	309	218	326	308	218	179	1,706
Tremont	.....	.....	.....	2,280	653	795	690	4,418
Windsor	.....	.....	.....	397	1,266	2,170	1,024	4,857
Totals	1,593	2,985	5,539	9,852	10,385	11,604	7,141	49,060
Totals of above months in 1882-3	1,124	2,235	4,451	8,586	9,351	10,572	4,460	40,779
Monthly and total increase of the past season of 1883-84	469	700	1,088	1,266	1,034	1,032	2,681	8,281

WINDSOR HOTEL.

Arrivals at the Windsor Hotel for the season ending May 1st, 1884, classified by States: New York 1,953, Pennsylvania 572, Massachusetts 402, Illinois 215, Ohio 152, New Jersey 151, Florida 209, District of Columbia 55, Virginia 49, California 23, New Hampshire 30, Georgia 92, Maryland 84, Minnesota 48, Delaware 16, Vermont 33, South Carolina 20, Wisconsin 42, Tennessee 38, Connecticut 141, Maine 39, Kentucky 52, North Carolina 19, Rhode Island 84, Alabama 8, Missouri 41, Texas 6, Indiana 22, Mississippi 4, Michigan 56, Oregon 10, Dakota 5, Iowa 26, Wyoming 1, Utah 3, Mexico 1, Louisiana 7, Montana 4, Colorado 20, Arkansas 2, Kansas 4, West Virginia 2, Nevada 1, England 53, Canada 35, Ireland 15, Scotland 7, Nova Scotia 10, Austria 2, Germany 1, Italy 1, France 1—total 4,857.

Departures classified by railroads and boats for the season ending May 1st, 1884: Cygnus 543, Sylvester 208, DeBary Line 142, Glen 172, Mail boat 12, Georgia 1, Water Lily 6, Arlington boat 1, Margaret 14, Hancock 26, Mabel 2, Florida 6, Merrimac 2, to Mayport 2, Port Royal 7, City of Palatka 80, Yacht Pratt 1, Yacht Ileen 3, Yacht Ryder 1, S., F. and W. Railway 2,251, F. C. and W. Railway 311, J. and St. A. Railway 483, F. and J. Railway 28, Florida Transit 10, J., T. and K. W. 144—total 4,857.

FROM

METEOROLOGICAL REPORT.

Abstract Covering a Period of Twelve Years.

AN OFFICIAL STATEMENT OF THE CONDITION OF THE WEATHER IN FLORIDA AS RECORDED IN THE SIGNAL OFFICE IN JACKSONVILLE AND WASHINGTON, ETC.

Below will be found a complete report of the weather in this city, as observed by the United States Signal Observer for the past twelve years. The report was prepared for the *Times-Union* by Sergeant J. W. Smith, the Observer in charge of the office here, and afterwards sent to the office of the Chief Signal Officer in Washington, where it was compared with the original records of this office on file there and corrected.

THERMOMETER—Maximum, Minimum and Mean.

1872.			1873.			1874.			1875.			1876.			1877.		
Max	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.
78	23	50.6	78	24	51.9	77	35	59.4	80	40	56.2	80	30	58.7	80	31	56.7
79	33	53.9	79	38	59.0	81	37	58.6	82	32	55.2	82	36	59.6	75	37	55.8
82	42	59.0	82	31	59.0	87	37	65.9	85	40	64.1	82	31	59.8	81	36	60.6
90	56	68.5	89	52	69.1	91	42	69.9	86	44	66.5	88	47	68.4	85	45	67.7
96	57	78.1	94	64	75.4	98	52	75.4	94	52	74.9	95	54	76.0	96	48	73.9
100	70	81.0	96	64	80.1	99	68	80.6	99	62	79.9	99	66	80.8	99	63	81.6
103	75	80.8	96	74	83.2	93	69	80.0	101	70	84.7	101	71	83.3	100.5	68	82.1
99	74	80.9	95	74	81.3	100	66	78.8	95	66	79.3	98	70	82.3	95	70	81.0
92	78	77.5	95	70	78.1	92	56	77.3	98	59	77.5	97	66	79.1	96	67	79.1
86	46	67.8	83	40	66.2	86	49	69.0	86	43	66.1	83	43	65.7	85	50	71.6
81	31	56.5	83	30	58.9	83	40	64 0	84	43	64.2	82	36	58.6	84	31	62.0
78	27	50.1	79	32	55.9	79	35	58.6	81	28	57.4	71	24	48.4	74	29	56.9
		67.1			68.1			69.4			68.8			68.4			69.1

1878.			1879.			1880.			1881.			1882.			1883.		
Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.
74	33	52.6	80	25	53.4	77	45	62.0	72	33	52.7	78	32	62.5	76	29	57.9
74	32	56.5	79	35	54.5	81	42	60.9	78	34	57.9	79	38	61.7	83	40	64.3
86	30	65.3	86	44	64.0	86	43	68.1	88	39	59.5	88	47	66.6	79	40	60
87	50	71.2	88	39	67.9	91	42	70.9	80	37	67.2	85	56	70.9	88	52	70.1
98.5	55	78.2	91	60	73.8	95	58	74.0	98	63	75.8	89.5	54	74.5	89.5	54	73
96	66	80.6	96	62	79.4	100.5	69	82.1	99	66	82.5	95.5	65	81.1	95.0	68	80.9
97	62	83.3	101	68	83.1	97	70	82.7	99	70	83.7	94	71	80 9	98	69	84.1
98.5	68	82.8	96	68	80.9	96.6	70	84.1	96	70	81.5	96	69	81.6	94.5	70.5	80.8
92	67	77.9	90	61	76.3	91	62	76.6	94	69	79.6	94	65	77.8	90.5	62.5	76 5
85	46	69.2	86	52	73.2	85	46	68.7	88	54	74.6	86	51	72.6	92.0	59.0	74.2
80	41	61.2	83	34.5	73.0	82	39	61.2	83	32	65.6	80	38	60.0	83	43	63.3
74	27	52.5	79	36	62.2	78	19	58.6	79	41	61.4	76	28	54.2	78.0	30.5	60.5
		69.4			69.3			70.2			70.2			70.4			70

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
WASHINGTON, D. C., January 16, 1883.

Statement showing the mean, maximum, minimum and water temperatures; the precipitation, in inches and hundredths, and the mean relative humidity, at Punta Rassa, Florida, for each month from the commencement of observations to December, 1882. (Compiled from the records on file at the office of the Chief Signal Officer, U. S. Army, Washington, D. C.)

PUNTA RASSA, FLORIDA.—MEAN MONTHLY TEMPERATURES.

(Computed from the three Telegraphic Observations.)

Year.....	January....	February..	March....	April.....	May.....	June.....	July.....	August....	September	October...	November.	December.	Means....
1871									80.2	77.2	71.6	65.7	
1872	61.5	62.8	68.0	76.3	78.0	81.0	80.3	81.3	79.8	73.7	67.8	62.7	72 8
1873	61.6	66.0	64.7	72.6	79.3	81.0	81.1	80.2	80 0	72.0	66.2	65.2	72.5
1874	62.9	68.7	71.3	73.7	75 9	79.4	80.7	81.2	78 8	74.2	70.1	65.5	73.5
1875	69.6	65.9	70.6	70.0	76.5	79.1	80.9	79.5	80.8	74.5	73.3	66.6	73.9
1876	67.1	68.7	67.9	72.5	75.6	80.4	80.4	81.4	80.8	74.5	66.6	59.9	73.0
1877	65.5	64.4	66.7	70.9	75.5	81.7	82.6	82.1	81.9	77.3	69.6	64.1	73.5
1878	60.0	63.5	69.8	74.6	78.4	81.5	82.5	83.0	80.1	75.2	69.1	61.5	73.3
1879	61.7	68.3	69.4	70.5	75.7	79.1	81.1	80.9	78.8	76.8	69.2	70.2	73.1
1880	67.9	68.2	72.5	73.4	75.8	80.2	81.8	80.3	80.0	74.9	72.9	62.7	74.2
1881	64.5	65.2	64.9	69.5	76.3	81.7	82.9	80.6	79.9	77.2	72.1	67.7	73.5
1882	67.9	67.9	70.8	75.4	76.7	80.5	80.4	80.8	79.6	76.3	67.1	62.6	73.8
Mns.	64.6	65.9	68.8	72.7	76.7	80.5	81.3	81.0	80.1	75.3	69.6	64.5	73.4

NOTE.—The daily means are obtained by dividing the sum of the readings at the three telegraphic observations by three; the monthly means by dividing the sum of the daily means by the number of days in the month.

MAXIMUM TEMPERATURES.

Year.....	January...	February..	March.....	April.....	May.....	June.....	July.....	August....	September.	October....	November.	December.	
1872	77	78.5	81	87	92	91	92	92	92	88	83	80	
1873	80	79	81	88	90	94	93	92	89	88	83	81	
1874	79	84	85	87	90	91	91	91	91	85	82	80	
1875	80	80	83.5	82	86	89	91.1	91	90	89	85	81	
1876	81.5	81	81.8	84	90	92	92	92	91	89.5	82.5	75	
1877	80	77	80.5	83	85	93	93	92	92	89	87	78	
1878	74	75	84	84	89	92	91	92	90	88	81	76	
1879	78	79	81	85	89	91	92	92	90	89	84	80	
1880	80	79	84	86	98	93	92	91	91	88	83	81	
1881	80	78	82	86	89	92	92	91	91	89	86	82.5	
1882	80	81	83.5	85	90	91	91.5	92	90	87	84	78	

MINIMUM TEMPERATURES.

Year.....	January...	February..	March.....	April.....	May.....	June.....	July.....	August....	September	October...	November	December
1871									72	69	50.5	43
1872	39	46	50	68	65	71	72	71	71	58	37	35
1873	37	47	38	55	63	72	69	71	72	57	42	40
1874	42	50	55	55	59	70	70	71	67	64	50	49
1875	51.2	43	50	66.5	62	69	69	70.5	69.5	55.5	51.5	42
1876	42	51	44	56	61	70	67	72	69.5	55	48	34
1877	40.5	46.5	50	55.5	62	68	75	75	70	64	42	41
1878	42	48	50	62	64	72	73	73	69	54	48	38
1879	33	44	55	48	64	64	70	72	71	63	46	56
1880	53	52	49	53	65	67	69	70	67	57	49	39
1881	45	46	49	46	65	71.5	73	70	71	66	46	48
1882	42	49	57	64	64	68	70.5	72	70	60	45	36

MEAN OF THE MAXIMUM AND MINIMUM TEMPERATURES OF THE WATER AT THE OCEAN BOTTOM AT PUNTA RASSA, FLORIDA, FOR THE MONTHS NAMED.

Average depth of the water at the place where observations are taken is 11.9 feet.

Year.....	January...	February.	March	April.....	May.....	June.....	July	August....	September	October...	November	December.
1878	60.5	*	74.5	76.0	83.0	88.0	87.5	86.5	85.0	†	71.5	64.5
1879	62.0	66.0	72.0	75.0	81.0	85.0	86.5	85.0	84.0	78.0	71.0	70.5
1880	*	70.5	74.0	76.5	*	85.5	88.0	83.5	83.0	78.0	76.0	66.5
1881	64.5	66.0	70.0	73.5	81.0	86.0	87.5	84.8	85.6	80.6	73.6	68.8
1882	67.4	70.0	74.4	79.0	81.8	85.3	86.5	88.0	85.5	80.3	72.1	65.6

* Record incomplete.
† Thermometer broken.

PRECIPITATION.—(IN INCHES AND HUNDREDTHS).

Year	January...	February.	March	April.....	May	June.....	July.....	August....	September.	October...	November	December.	Annual Amount.
1871									15.49	1.80	0.98	2.68	
1872	2.64	2.71	0.69	1.54	2.88	7.16	8.68	4.08	15.14	2.82	0.53	1.87	
1873	6.84	0.48	1.59	3.58	9.89	5.21	5.13	9.85	9.13	3.90	2.83	1.57	60.00
1874	2.05	2.50	0.08	0.41	1.27	11.94	8.06	5.11	4.73	0.09	1.21	0.71	38.16
1875	0.84	0.03	0.70	4.59	2.07	3.33	5.33	12.49	6.99	2.08	1.00	1.26	40.71
1876	0.04	0.51	1.35	0.88	2.73	4.34	16.95	5.19	4.07	5.25	2.56	0.47	44.34
1877	1.53	2.89	0.84	1.09	4.38	1.26	6.59	8.33	4.86	1.99	4.30	0.93	38.99
1878	4.03	7.41	2.24	4.05	5.06	4.75	9.58	3.95	8.77	0.56	0.34	1.07	51.81
1879	0.31	2.11	0.14	0.63	1.42	3.22	6.21	12.75	13.78	4.85	0.35	0.52	46.29
1880	3.22	1.26	0.03	0.55	5.32	2.45	3.76	8.55	2.50	8.10	1.81	1.98	39.53
1881	4.02	0.52	1.18	0.54	3.13	2.53	3.60	7.28	7.20	1.58	0.80	1.22	33.60
1882	0.30	0.20	0.15	3.59	2.51	8.46	5.58	3.62	4.12	3.90	1.04	1.10	34.57
Me'n	2.35	1.87	0.82	1.95	3.70	4.97	7.22	7.88	7.43	3.08	1.48	1.28	42.61

MEAN RELATIVE HUMIDITY.—(FROM THE THREE TELEGRAPHIC OBSERVATIONS.

Year.....	January..	February..	March	April	May.....	June.....	July	August....	September	October...	November.	December.
1873	79	75	74	73	74	75	76	78	80	73	74	78
1874	77	80	72	72	71	78	77	76	77	72	77	77
1875	83	77	73	67	74	74	76	79	78	76	81	74
1876	75	76	71	75	74	77	79	77	77	77	73	78
1877	73	76	70	69	70	67	71	74	72	74	75	71
1878	78	74	74	73	70	77	79	77	77	70	70	69
1879	72.7	70.6	70.4	66.7	70.9	72.5	74.8	78.1	81.8	78.3	71.4	78.6
1880	77.3	77.2	71.0	70.7	74.8	75.8	72.9	77.0	75.0	74.0	81.0	74.1
1881	79.0	72.0	69.0	72.0	70.0	72.0	73.1	76 9	78.2	73.9	75.4	76.2
1882	76.3	72.9	69.4	73.8	70.5	73.7	77.1	77.1	76.7	76.2	71.9	77.5
Mean.	77.2	175.1	71.7								75	75

DEPARTMENT OF AGRICULTURE.
SPECIAL REPORT—No. 62.

4

OBSERVATIONS

ON THE

SOILS AND PRODUCTS OF FLORIDA.

By WILLIAM SAUNDERS,
SUPERINTENDENT OF GARDENS AND GROUNDS, ETC.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1883.

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SOILS AND PRODUCTS OF FLORIDA.

DEPARTMENT OF AGRICULTURE,
Washington, D. C., January 26, 1883.

Mr. WILLIAM SAUNDERS,
Superintendent Gardens and Grounds:

SIR: You are hereby directed to proceed to Florida and make investigation as to the capability and probabilities of the fruit-growing and sugar-manufacturing industries of the State, as well as other matters of an agricultural nature. Should you deem it desirable you may stop at other places on your route in Georgia and South Carolina.

Respectfully,

GEO. B. LORING,
Commissioner.

In accordance with the above instructions I left Washington at noon on the 27th of January last, and reached Jacksonville on the evening of the 28th. When I left Washington there was a heavy coating of snow and ice on the streets, and snow was to be seen on the fields until about fifty miles south of Richmond, Va., where it disappeared. Leaving Wilmington, N. C., at eleven o'clock at night, a perceptible change of climate was felt, and the frogs were heard piping in the marshes. After passing Charleston the pools were sprinkled with young leaves of *Nuphar* and *Nymphæ*, and the dwarf palms were in great plenty in low grounds, and in wet places they were massed in close thickets.

Nearing Savannah, catkins were observed on alders and willows, and in cultivated grounds pease seemed to be about six inches in height, and the kale showed thick and green in the rows. The flowers were showing quite bright on the swamp or red maples, and as we neared Jacksonville it became quite warm. We had passed from midwinter weather to midsummer weather in the course of twenty-four hours.

On the morning of the 29th I made several calls in Jacksonville, mainly with the view of learning how best I could reach the Everglades, but did not succeed in gaining any information which could aid me. Peach trees were in blossom here, and the Carolina jasmine filled the air with its fragrance. Not having anything to detain me here, I left about 2 o'clock for Palatka. The afternoon was wet and hazy, and somewhat chilly. The Saint John's River from Jacksonville to Palatka, with its rounding headlands and curving shores, very closely resembles the lower portion of the Potomac River before its entrance to the Chesapeake.

On the morning of the 30th I called on Colonel Hart, of Palatka, who kindly sent me over the river to view his orange grove. This is rated as an old grove; the trees are about thirty years planted, in the oldest part, and appeared to be in good health. Much of the crop had been removed, but many of the trees were still full-cropped. The entire surface seemed to be matted with roots; the trees are so close together that their branches meet overhead. The approved distance is to set the trees 30 feet apart; earlier plantings were from 16 to 20 feet, and some growers have found it advantageous to remove alternate trees in groves where they are too close together. This thinning can be accomplished without sacrificing the trees; it is only a question of mechanics, as orange trees are easier transplanted than any other fruit tree that I know of. Colonel Hart has found it necessary to provide means for irrigating his trees. This is done by laying two-inch iron pipes on the surface, between the rows, through which water from the river is forced by an engine. Thus he is enabled to assist his crop when most in need, which is during the period of swelling of the young fruits. Orange trees require abundance of moisture at that period of their growth, although after the fruit is ripe but little water is required, until growth again commences the following spring.

Much of the fruit is covered with what is called rust. The cause of this is still somewhat a matter of dispute; a prevalent opinion attributes it to a microscopic insect which is found on the diseased fruits; others again, maintain that it is an incipient fungus growth, like the mildew on the gooseberry, and the pear fungus, which causes the cracking of some varieties of that fruit. I observed that in some cases only one side of the tree seemed to be seriously affected, and the fruits in the interior of the tree, where they were well protected, seemed to be entirely exempt. Again, trees were noticed with rusted fruits on all sides, which seemed equally affected. In tracing the origin of maladies of this kind, close observation is necessary to distinguish consequences from causes. It is now well known that the lowest forms of vegetable and animal life, such as fungi and bacteria, may generally be found present in diseased organisms. It is also maintained by many physiologists that the presence of these parasites denotes decomposition, or disease, which may have their origin from other causes, and that therefore they are consequent upon, and not the cause of, disease. Dusting the trees with lime and land plaster, showering the leaves with whale-oil soap and decoctions of tobacco, are remedies said to be found useful; these are well known to be effectual in destroying fungoid growths. There is need for further observation before finally deciding on the origin of this malady. I observed some guava plants, but was told that this point was too far north for the plants to fruit freely. There, as well as at other places in this locality, banana plants were seen. The cold weather in December had destroyed all the outside leaves, but the young ones were pushing up seemingly healthy and vigorous, and as in these

plants the fruiting stalks spring up from the center of the stem, and may not be injured to any great degree by the loss of a few of the outside leaves, the fruiting capacity of the plant may therefore not be seriously impaired by the cold. Not having had the opportunity of seeing banana fruits which were ripened in Florida, I am unable to judge as to the effects of this annual partial destruction of the foliage of the plant. Damp, rich bottom lands seem to be preferred for the banana. So far as growth in summer is concerned these places are well fitted; but looking to the probability of the plants being subjected to a check about the end of the year, they would pass this period with less injury if kept dry for some time previous. If ever the culture of this plant becomes systematized into a profitable industry, means will be adopted to control root moisture by means of open ditches which may be flooded with water, or drained dry, according to the will of the cultivator, as he may deem best for the plants.

The orange trees in this grove, as far as I could observe, seemed to be in good health. The treatment and location must be bad, indeed, if a young orange grove shows evidence of weakness in any degree; but here was a grove some thirty years old, the trees set so close that even if each alternate tree was removed they would still be left closer than many of the new groves now being planted, and the trees were in good condition, and produced satisfactory crops of fruit. I do not remember seeing any scale insects on the trees, although, if I am not forgetful, I was told that some trees had been infested, but had been cleared by means of lime and sulphur. With the means now at command of supplying the trees with an abundance of water, the likelihood of their being troubled with scale is reduced to a minimum.

I was shown some young trees, planted on lower and damper soil than that of the main grove, which had not done so well; but a part of the grove had been ditched, with great improvement visible on the trees.

The Tangerine orange was well fruited; also the Mandarin. The origin of these kinds is matter of doubt. The Mandarin was at one time considered to be a species, and was known as *Citrus nobilis*. Later authorities class both this and the Tangerine as varieties of the common orange, *Citrus aurantium*. Again, it is very generally supposed that these two names are merely synonyms, but as grown in Florida they are very distinct varieties. The Tangerine is a more robust growing plant than the Mandarin; it has larger foliage, and the fruit is larger and of a fine deep reddish color. The Mandarin has a weaker growth; the fruit is smaller and of a yellowish color. I think the Tangerine is the more highly valued, as it certainly is one of the most beautiful of oranges, so far as color is concerned.

The grape fruit, of which several well-laden trees were shown, is a very grateful subacid, sprightly, and palatable fruit of the Shaddock family. This is probably identical with the pomeloes, or "forbidden

fruit," of the West Indies. There are many varieties of the Shaddock, *Citrus decumana;* the large fruited kinds, weighing ten pounds and upwards, are called pompelmousses, the smaller fruited varieties being known as pomeloes.

Proceeding up the Saint John's River my next stop was made at De Land landing. The river scenery is somewhat monotonous. The cypress is abundant, and the sweet gum plentiful. Occasionally trees of the latter could be seen with still a remnant of last year's foliage so highly colored as to give the appearance of a scarlet blossom.

The palm trees, *Sabal palmetto*, were a never-ending source of delight, being so strongly characteristic of tropical vegetation. De Land is about five miles east from the river. It is a bustling, thriving city, still in its infancy. Judge C. H. Wright, mayor of the city, and one of the pioneers of the place, very kindly took me in charge and drove me round a wide circuit, where numerous planters were industriously setting out orange trees. The lands here are of a gently undulating configuration, well stocked with pine trees suitable for building purposes. The clearings show fields of the usual sandy soil, but the young orange trees do well in it, although it must ultimately be necessary to apply manure in order to maintain a supply of organic matter, of which most of the lands now employed for orange culture are greatly deficient.

Among other places visited was that of Mr. Coddrington, of the Florida Agriculturist, who, from his long residence in the West Indies, is familiar with the culture of tropical plants, many of which he is attempting to cultivate, but the climate admits only of indifferent success with most of them. The *Eucalyptus globulus* was observed near the town, but it seemed to have been injured at some time by cold; a group of several trees had evidently lost their leading shoots, and had assumed the form of spreading trees, having several branches springing from near the surface of the ground. The hardier species of *Eucalyptus* would probably do well as far north as this point, if not further, but *Eucalyptus globulus* is evidently better suited to more southern localities.

Attempts are made here to cultivate pine apples, and they are fairly successful so far as the system practiced will allow. The plants are set thickly together and shaded and sheltered by pine boards as a protection from the cold; but this also excludes light, and the plants are weakened to some extent. It is evident that pineapples can only be grown here by a special system of protective nursing which might render their culture profitable.

The production of vegetables in poor, sandy soils has many drawbacks, but undoubtedly much may be accomplished by the judicious use of fertilizers and choosing the best season for sowing and planting crops. While here, I was introduced to a young man, Mr. Parce, who is making praiseworthy attempts in this line. He has selected a piece of low-lying land and has it well stocked. Cabbages were well advanced, beets, onions, &c., showing well in the rows, and tomato plants nearly coming

into flower. Everything seemed to be in need of water, no rain having fallen for several weeks, but Mr. Parce has now provided himself with a windmill and well for water, with which he expects to make himself independent of rain falls. The winter season is here the dry season, and this sandy soil soon shows the want of water, especially when planted to such crops as cabbages and other vegetables with large foliage, and hence irrigation will be a valuable help to production.

A small plantation of strawberries were on the eve of flowering; they were too young, or rather they were too small to produce much fruit. Both soil and climate are against the best growth of the strawberry, and its profitable culture here will probably depend upon a system of management by which the plants will undergo a preliminary preparation either by growing them in pots or in beds of rich soil, so that strong, well-budded plants can be set out in fall for fruiting the following spring. Something will also be gained, in time, by raising seedlings and selecting those which do best in the climate. A variety, said to be from Mississippi, called Noonan, I found to be considered the most valuable at present. On the first day of February I found the thermometer at sunrise to mark 65° in an exposed location, and as the day advanced the heat increased until it became quite warm in the sun.

I left De Land about noon and proceeded up the Saint Jóhn's river to Sanford. Going southward, the cypress trees were showing young leaves, and the palmetto trees were seen in great profusion, and in beautiful specimens 30 and 40 feet in height. The extremely winding course of the river is at first novel, then becomes monotonous; the monotony is at once dispelled on reaching Lake Monroe, which (probably because of the great contrast between the irritating scenery on the river), appeared to me as one of the most beautiful of possible lake views. About eight o'clock this evening the thermometer was 76°, but the cool breeze made it more comfortable to sit indoors than out.

Having called on General Sanford, arrangements were made for visiting his and other groves the following day. General Sanford's estate of Belair is a few miles south of the town. On reaching it I was met by Mr. Houston, superintendent at Belair, who accompanied me and imparted much information regarding the experimental tests which have been made in the culture of the citrus family and other semi-tropical plants. There is much of interest, as well as of instruction, to be found in a visit to this plantation. General Sanford has spared no expense to procure from all parts of the world everything in the way of economic plants that gave even the slightest hopes of successful culture in Florida. In this respect his operations have been of much value; even his failures, although they may have been unprofitable to him, have been profitable to the State, inasmuch as they serve to prevent further loss by other experimentors. Among the plants which seemed to flourish were the Jambos apple, *Eugenia jambosa*, which I found in full flower. The star apple of the West Indies, *Chrysophyllum cainito;* several species of *Anona*

the camphor tree, *Camphora officinarum;* the Mexican pepper plant, *Schinus molle;* the New Zealand flax, *Phormium tenax;* several species of *Cinamomum*, but not the cinnamon of commerce; the arnotta plant, *Bixa orellano;* several species of bamboo; the wampee, *Cookia punctata;* the tropical papaw, *Carica papaya;* the tamarind, *Tamarindus indica;* various Australian plants. such as *Macadamia ternifolia, Grevillea Banksii, Ficus Australis, Eugenia Australis;* several species of palms, among others *Pritchardia pacifica, Corypha Australis, Oreodoxa regia, Seaforthia elegans, Phœnix dactylifera, Phœnix reclinata, Chamærops excelsa, Chamærops humilis,* and *Latania borbonica.*

Camellias, Chinese azaleas, oleanders, Chinese hibiscus, Chinese tea, the loquat, the arrowroot plant, acacias, and many other similar plants endure the open air with little or no injury.

A small plantation of olive trees seemed to be in perfect health; indeed, their very luxuriant growth has probably prevented them from fruiting, which they have not done so far, although they are of good size, and under less favorable conditions for growth would doubtless be bearing fruit. Root pruning would stop excess of growth, and favor fruit production, and the operation might be performed upon these trees with advantage.

The collection of the citrus family in this grove is very extensive. Everything of promising value is procured and tested, and none but those which reach the highest standard of excellence and adaptability are increased. Much expense, time, and attention have been devoted to lemons. The greatest fault which has been found with lemons grown in Florida has been their very thick, coarse skins. Some have supposed that this is occasioned in some degree by climate, and give as a reason that even the finest Sicily lemons, when grown here, lose their delicate thin skins, and acquire a bitter taste. It is much more probable that the fault has been in the variety rather than in the climate, although the latter may exert an influence as suggested. General Sanford has made selections from his numerous varieties, and he now feels confident of producing lemons that will meet the requirements of the American trade in this fruit.

It is probably safe to say that there is no finer collection of lemons in Florida than can be seen in this grove. Oranges have been equally subjected to critical tests. The opportunity is here presented of a comparison of the delicate peculiarities of flavor, sprightliness, and texture of these fruits, of which I found a large variety in bearing. A sweet, pleasant-tasted orange, which one would pronounce as good, is made to appear quite insipid when compared with the rich, brisk, full fruity flavor which is realized in eating a properly ripened fruit of the Jaffa orange. The Majorca is but little, if any, inferior; next in order comes the Maltese oval, after which I would place a variety which was named Mediterranean Sweet. There seem to be several varieties of this name, and they are designated by numbers. The St. Michaels, which is a

favorite variety at the Azores, does not stand very high in Florida. It is, however, a fairly good, rather small-sized fruit, and specially productive. The Bahia, as distributed by the Department about ten years ago, is but little known, and the opinion prevails that it is not so productive as other oranges. As to flavor, it takes a high rank. I found that buds of it had been introduced from California, where it is prized above all kinds in that State. There it is known as the Washington Navel, and more lately the name has, in some cases, been changed to that of Riverside Navel. As there seem to be several varieties that receive the name of Bahia, or Navel orange, some confusion may exist. I have seen a very inferior fruit which was sent out as the Bahia. Those imported by the Department from Bahia were distributed both in California and Florida, and while it is claimed as the best variety grown in California, it has not proved of sufficient merit to attract any attention in Florida. I think that it is doubtful whether any of the trees of this variety which were sent to Florida by the Department have yet fruited. There have been several importations, in former years, of orange plants from Bahia into Florida, and these may be different from those imported and distributed by the Department.

Pineapples are cultivated to greater perfection here than I have seen them elsewhere in Florida. An extensive assortment has been collected from all parts of the world where pineapple plants were to be found, so that the opportunity is presented of selecting those varieties which prove best adapted to the climate and conditions of culture here. The only drawback seems to be the likelihood of a check to growth and maturity of the fruit from cold nights in early winter. To guard the plants from extreme injury they are protected by a covering of palmetto leaves, which answer admirably, and much better than the almost absolute shade which results from a covering of boards. A slight shade even in summer is found to be of advantage to the plants under this artificial treatment. The covering consists of a horizontal trellis supported by posts elevated a foot or so above the top of the plants, and thatched with the large leaves of the palmetto. On looking under this cover the plants were seen to be in good healthy condition, and many of them bearing large, nearly ripe fruits. The ripe apples are gathered once or twice a week, and several dozens of fine fruit were shown me in the fruit house. Some of the kinds bear as large and as handsome fruit as I have seen. One turned the scales at ten pounds. This was a splendid specimen not often excelled under any system of culture. At various points I observed that pineapples which had received no protection whatever were slightly injured by cold, but the points of the leaves only seemed to be hurt, and the center of the plant not damaged. These were mostly young plants laid closely together in trenches to be ready for planting out in spring. Where no protection is needed the pineapple is grown similar to cabbages; they are set out in rows which are 3 or 4 feet apart, and the plants about 3 feet from each other in the

row; but where protection is necessary they are set more closely together in beds for convenience in covering. The general routine of pineapple culture in Florida, as I saw it, is to set out the rootless cuttings or side shoots in early spring. These soon form roots and start into growth, and by the end of summer the plants are large enough to fruit. But before the fruit becomes ripe cold nights set in, and a covering becomes necessary at a time when all the sunlight possible is required to mature and flavor the fruit.

To provide for this contingency the plants have to be set in closely packed beds so that the covering may be applied, and withal the fruits cannot reach the perfection they would attain if they could be fully exposed to the weather without risk of injury from cold. It would be better in every respect to change this protecting period to the young plants; for instance, if a suitable spot could be selected, the soil made rich (which could readily be done on the limited area required), and the offsets planted at suitable distances apart, and encouraged to grow during fall and winter, they would then be well rooted plants when set out permanently in spring, and probably yield ripe fruit in fall before protection became necessary. But the more certain method would be that of growing the young plants in glass covered frames, and in pots, or cheap chip baskets, anything to partly or wholly confine the roots, so that no check to growth would be experienced when the plants were removed. By this means fine plants could be obtained; the object to be secured is that of having plants for permanent planting so far advanced that they would fruit early in the fall of the same year they were set out. This might require more labor and attention than is needed by the present system, although I incline to think that it would not. But in industries of this kind the mere amount of labor required is not a point of much moment, the vital question is in making the labor profitable; and the more labor which can be profitably employed, the more will profit be increased.

Although the pineapple succeeds tolerably well in sandy soils, yet the best plants and finest fruits are produced in soils of a loamy character. There are plenty of lands in Florida where the pineapple can be grown to great perfection. Such are the lower lying richer lands usually selected for the culture of culinary vegetables. It may be suggested that the best preparation of this kind of soil for this fruit, after necessary drainage, is to plow it up in narrow ridges, leaving deep furrows between them; the tops of these ridges would be between 3 and 4 feet apart, the plants to be set on the top of the ridge. This would secure both depth and warmth of soil. The pineapple is not averse to moisture when the soil is warm and the plant in growing condition, although it will *exist* under conditions of considerable dryness. The best fruits which I have seen, both as to size and quality, have been taken from plants which were grown on a strong loamy soil. Another expedient might be tried. In certain parts of the world where the seasons are ir-

regular and late spring frosts of common occurrence, it is a practice to collect piles of dried weeds and other combustible rubbish, to be ready for firing and raising a smoke in orchards of apples and other kinds of fruits which would be liable to sustain injury from a slight frost. This is becoming a common practice in California, in sections where frosts prevail after the vineyards are well-advanced in growth. Pacific papers make frequent mention of crops having been saved through this means, while neighboring fields, where this precaution was not employed, have suffered severely, and I can vouch for its efficacy in my own practice. Frosty nights are so rare in this part of Florida that this precaution would probably be sufficient to prevent injury, not only to plantations of pineapples, but also to orange groves. The fires may be lighted at night when frost is indicated, but it is found equally a preventive of injury if the smoke is thrown densely over the plants before sunrise. A sprinkling of coal tar, on dampened straw or weeds, increases the density of the smoke and renders it more effective.

Through the kindness of the Rev. Lyman Phelps, of this place, I was enabled to visit several orange groves in the immediate neighborhood. Mr. Phelps is noted for his knowledge of orange culture, and his great enthusiasm in everything pertaining to it. In passing from one grove to another the effects produced by judicious culture were very striking. Where the ground had not been surface stirred for some time, and grasses and weeds allowed to grow, the effect could be observed in the yellowish-green appearance of the foliage; sometimes this was so marked as to be seen for a considerable distance from the trees. Wherever scale insects were seen on trees it was on those whose vitality had become weakened, either on account of the poverty of the soil, or through neglect in cultivation, or both combined. I have to state, however, that I saw but little of the scale insect anywhere, and I presume that it will be found more frequently near the northern limits of orange culture than in more southern localities, where the growths are better matured before the autumn colds occur. On the first appearance of the scale insect on orange trees in Florida, fears were entertained that it would be difficult to eradicate, as no very effectual method had been found for its destruction. About twelve years ago the Department of Agriculture secured a large collection of citrus trees from Europe. When they arrived it was seen that they were badly infested with the scale insect, and it was not considered advisable to increase the plants until they were perfectly clean; efforts were made to clear them of the last vestige of the insects, but this proved to be no easy task. After years of fruitless efforts, during which time many remedies were tried, none were found to be effectual except coal oil; this, showered over the trees, had the effect of dislodging the scale, and ultimately the plants were cleaned. One-half pint of the oil was poured in six gallons of water, this was applied with a hand syringe, the water and oil being agitated while the application was being made. On being informed of the suc-

cess of this remedy, it was tried in orange groves, also with success; but the method of application was crude, unsystematic, and indefinite, owing to the impracticability of mixing the oil and the water; this has now been overcome by making an emulsion of the oil with milk, which afterwards can be diluted with water.

Mr. Phelps has a good collection of oranges in his grove, and some time was spent in testing their respective qualities. The most conspicuous variety was a healthy, vigorous Tangerine tree, bearing fruits of a brilliant scarlet color; seen from a distance, it appeared as if sprinkled with the blossoms of a scarlet geranium. This grove receives thorough culture, and Mr. Phelps uses fertilizers very freely, and with evident advantage. The soil is poor, and it seemed to me, requires to be re-enforced with a supply of organic matter. I was constantly impressed with the suggestion that, in selecting the highest lands for planting, and which are usually the poorest, the more fertile bottom or lower lands were overlooked; these, after being properly drained, would be better adapted for a permanent healthy grove than the poorer sands on the plateaus. Of course it would not be wise to plant in places where good drainage cannot be obtained, but there are plenty of good lands well supplied with organic matter which could be laid dry at trifling expense.

The cost of tile draining was given as one reason for the rejection of these wet grounds, but in this climate open ditches can be retained at little cost, since there are no frosts to crumble down the banks, as in more northern regions where sloping banks are ultimately brought down to the "angle of repose" by the action of frosts and rains. A portion of the grove on this place has been planted in lands thus ditched; the section of the ditch showed a considerable amount of black deposit mixed with the sand, and the trees appeared in most perfect health, and bearing abundantly of fine fruits.

The cow pea is very generally employed as a green crop for the improvement of these sandy lands. This is plowed under both before and after planting the trees. After the trees have made several growths, and the roots have extended for a considerable distance, the deep plowing necessary to properly cover the pea vines is considered to be injurious, which it undoubtedly is; but it has been related by many planters in Georgia and other States where the cow pea is largely used for the amelioration of poor lands, that they have found as good results where the vines are allowed to decay on the surface, so that by this means orange groves may be fertilized without plowing or disturbing the roots of the trees further than what may be necessary in planting and covering the seed.

Having spent as much time here as I thought advisable, I turned my attention towards finding the best means of reaching the region of the Everglades, where the improvements connected with the drainage of these lands were being prosecuted. With this object in view I called

on Mr. Ingraham, the president of the South Florida Railroad. On learning that I wished to see the nature of the country, and the soil of the lands surrounding the lakes in the region of the Kissimmee River, he promptly suggested that I should take advantage of the opportunity of accompanying the president and directors of the Florida Land Improvement Company, who were then at Kissimmee City making preparations for a voyage from that place to Okeechobee, and from there to the Gulf of Mexico.

Mr. Ingraham at once communicated with Mr. Disston, the president of the company, and these negotiations resulted in a dispatch from that gentleman inviting me to accompany him in the trip through the Everglades. Thus, through the kindness of these gentlemen, I was put in the way of seeing more of that region than I otherwise could possibly have done, all of which I duly appreciated. Mr. Ingraham having further extended his kindness by arranging for my reaching Kissimmee City, and learning that Mr. Disston would not leave that point for a day or two, I accepted the invitation of Mr. Chase, of Winter Park, to visit that place and its surroundings.

Winter Park is finely located; it is bordered by a series of lakes; the ground slopes gradually from the higher pine lands to the margin of the water. This is a new place, only quite recently a pine forest, through which avenues and streets are now being formed, and clearings made for building-sites and orange groves. There are numerous orange groves in this vicinity, and preparations for their extension were everywhere visible. The guava flourishes well here, although the plants seemed to have suffered slightly from cold. A plantation of several acres was seen. The fruit is utilized by being made into a jelly, a sample of which was presented to me. The guava is too perishable a fruit to be sent to market in a fresh state, but the manufactured article may result in a profitable industry. As a fruit for domestic consumption in its ripe state, the guava is very justly held in high estimation by most families, and I can testify as to its value as a dessert dish when properly prepared for the table. The species of guava mostly grown in Florida appear to be the pear-shaped variety of *Psidium guaiava.* The purple guava, *Psidium cattleyanum,* is considered to be a more palatable eating fruit, and has a juicy flesh of a very agreeable acid-sweet flavor.

This Brazilian species is rather more tender than the species previously mentioned; the plant is also very distinct in appearance, assumes a more tree-like form, and has foliage somewhat resembling a camelia. I observed some specimens at Belair, but they did not seem to be entirely adapted to the climate.

Among other groves visited in this neighborhood was that of Judge Lawrence. This grove is quite young, but is very promising. I allude to this particularly because of a system of treatment which I had occasion frequently to recommend before coming here, and that is to sow the young orange groves with oats or rye in the fall and cover it over

in spring, or cut it up for surface mulching during summer. Mr. Lawrence sows oats in the fall over the surface of his young groves, seeding very thinly; then by running over the field with a cultivator in early spring, the oat plants are loosened up and then raked together and spread over the roots of the orange trees and there allowed to decay.

As I will not have much more to say about orange culture in these notes, I may here remark that the climate of Florida seems particularly well adapted to the orange. Being somewhat familiar with the culture of the orange in glass structures, not merely as ornamental plants, but for the production of fruit for table use, just as grapes are grown under glass for a like purpose, the climatic conditions which have been found necessary for success under artificial treatment are similar to those afforded naturally in most parts of Florida. Under artificial culture the best results attend a course of periodic treatment somewhat as follows: About the time that the trees have nearly finished flowering, and have just commenced to make fresh leaves, copious supplies of water are given to the roots, and the atmosphere is kept supplied with moisture, with an average temperature of 65° to 75°, or ten degrees lower during night than the lowest sum stated, if the weather is very cold. This temperature is maintained for two or three months, with ample ventilation and a drier condition of atmosphere as the fruits approach their full size. Water at the roots is supplied as required. When indications of coloring appear on the fruit the atmospheric moisture is still further reduced as well as the water at the roots, and when the fruit has ripened, moisture both in the air and soil is avoided as far as possible. During the months of December and January the soil is kept as dry as practicable without actual injury to the vitality of the plant; the atmospheric temperature is also kept about 45°, or but little over the freezing point, for a day or two at a time, when the weather is extremely cold. It is found better to thus lower the temperature than to subject the trees, at this time of the year, to great artificial heat.

Trees thus managed will stand considerable cold without injury. I have known a large house full of orange trees to be subjected to ten degrees of frost without hurting the plants; but they were at the time in the best condition of repose to withstand it. This dryness of soil and lowering of temperature during late fall and winter tends to harden and ripen the growths, and favors the maturity of the flower buds. From what I saw and learned relative to the climate of Florida, its periodic conditions of rainfall and heat coincide, in a marked degree, with the routine of treatment which I have sketched above. The climate is better fitted for orange growth than is the average of the lands; this is also a favorable condition of things, because it is easier to improve and change the character of the soil than to make a change of climate. But, looking at the quality of the orange as grown in Florida, it seems scarcely possible to improve it, yet it may be related that fruits pro-

duced on strong loamy soils and on clayey soils have more saccharine matter than those which have grown on sandy soil.

The relative merits of budded orange trees and seedlings is a matter very frequently discussed in orange-growing communities. So far as I understand the question, it resolves itself mostly into the respective longevity of the trees; considered purely in that light it can only, I take it, be a matter of conjecture, which can be settled in the coming centuries, if it is ever settled. The same question has often been discussed with regard to the apple, pear, peach, &c., and is still unsettled. It is often argued that peach trees raised from seeds planted in the orchard and never removed or budded are longer lived than the ordinary nursery trees which have been budded and transplanted. The oldest bearing peach tree which I have seen was grafted on a plum stock; it was sixty years old, and looked as if it might live for sixty years more. The age which budded trees may attain need not be a matter of present anxiety. The more important question is that of the commercial value of the products of budded and seedling trees, a question, it seems to me, not difficult to determine.

It is safe to assume that the time is not far distant when oranges, like other commodities, will be bought and sold under properly designated names or brands. An apple or pear orchard composed of seedling trees would not be considered of much value. Some varieties of the peach are very closely reproduced from seed, but peach growers are not willing to run the risk of possessing a mixture. They wish to grow certain well-defined varieties, and accordingly they plant trees budded with these varieties. The varieties of the orange have the reputation of reproducing themselves from seed more closely than any others of our cultivated fruits, but there is no absolute certainty that they will all be precisely of the same size, appearance, or quality, and this difference will, just in proportion to its extent, diminish the marketable value of the crop. It may therefore be considered a wise proceeding in those who are setting out orange groves, if they are planting none but trees budded, or to be budded, with well known meritorious varieties.

Inquiries as to the best stock for dwarfing the orange have been met by suggesting that seeds of the mandarin be planted and the young plants used as stocks for dwarfing the large fruited varieties. It has been stated that the small growing Otaheite orange makes a good stock for this purpose. The northern fruit trees, such as apples and pears, do not succeed well in middle and southern Florida. Lately the Le Conte pear, a descendant of the Chinese sand pear, has been much planted. Several of these trees which I observed in this neighborhood did not promise much in the way of fruit; the warm climate keeps them constantly in a growing condition, which prevents that thorough ripening of the wood necessary to the formation of fruiting buds. As the trees attain age they may improve in this respect, but

trees of this variety, of the same age, in the grounds of this Department, are well covered with flowers at the present time; indeed they produced some fruits last season. In the northern parts of Florida, and States adjoining, the Le Conte pear is considered one of the best fruits which has so far been introduced; its southern, as well as its northern limits of successful culture, will be defined by experiment.

The Japan persimmon seems to find congenial climatic conditions in Florida; there are many varieties of this species, and of various merits. I learned that quite extensive plantations were being made, so that in a few years we may expect to see the fruit in our markets, where it will certainly command respect for its size and appearance, if not for its good qualities.

February 5.—On my way to Orlando this morning, I stopped to look at a factory where glucose is manufactured from cassava roots. The proprietor of the establishment being absent I could not procure any information regarding the yield of roots, or the amount of starch they yield per acre.

To reach Kissimmee City in time to avail myself of the opportunity of accompanying Mr. Disston, I was obliged to leave Orlando about noon. In the brief hour of my visit at this place I learned enough to convince me that it would be to my advantage to spend one or two days in this locality, and on leaving I promised to return and accept at least a portion of the many offers which were extended me to visit various interesting points in that flourishing neighborhood. I regret, because of the promise made, that circumstances prevented me from fulfilling it.

After reaching Kissimmee City I found that the expedition would not start until the following morning. This embryo city is situated near the northwest shore of Lake Tohopekaliga. This lake covers a surface of about 26 square miles and is 65 feet above tide water. The immediate surrounding country is of a level character, but rising sufficiently above the lake to admit of draining into it. The soil is mostly dark colored, a mixture of decayed and decaying vegetable matter and sand. Making a vertical cut on the bank of the lake, I found an average of 18 inches of this deposit, underlaid with a yellowish sand. This soil is well fitted to produce any of the crops usually planted in Florida, if drained, and would be easily adapted to the growth of sugar-cane by running open ditches through the fields to take off surplus water. Even this precaution may not be essential, as the water level of the lake is being lowered from the dredging operations now in progress.

For pineapple culture these lands appear to me to be better adapted than any that I have yet seen in the State; and that a test was about being made was evident from the fact that a stock of twenty thousand young plants were lying in trenches ready for transplanting as soon as the ground could be prepared for them. Cabbages, lettuces, and other vegetables of good size and appearance were seen in house gardens, but

as the place is newly commenced there has been no time for improvements.

In the course of conversation with a resident, I found that he had the opinion that all kinds of tropical plants could be cultivated here to perfection. I have heard this statement so often made with regard to the Florida climate, and so persistently maintained, that I have been particularly observant on this point, and am fully convinced that very erroneous impressions prevail on this subject. The summer climate of Florida is tropical; indeed, we find this tropical summer region to extend to other States. The length of the tropical season diminishes as we proceed northward. But the knowledge of the native country of a plant is not alone sufficient information to enable us to designate its power of endurance of cold. The mere fact that a plant is a native of China, or that it comes from South America, will not in itself enable us to assign a limit to its climatic range, as we have plants from these countries which are capable of resisting a zero cold, while other plants from these countries would be completely destroyed if subjected to a temperature of 32° F. Temperature is the regulating factor, and as this is affected by elevation as well as by increase of latitude, we find the mountain ranges near the equator presenting all the features of a tropical, a temperate, and even an arctic vegetation. Thus palms, plantains, chocolate, and coffee luxuriate at the bases of these tropical mountains. Above these appear oranges, lemons, and limes; then succeed corn and wheat; and still higher commences the series of plants peculiar to temperate regions. Similar phenomena present themselves in temperate latitudes. Says a geographical writer:

> We may begin the ascent of the Alps in the midst of warm vineyards and pass through a succession of oaks, sweet chestnuts, and beeches till we gain the elevation of the more hardy pines and stunted birches, and tread on pastures fringed by borders of perpetual snow. At the elevation of 1,930 feet the vine disappears; at 1,000 feet higher the sweet chestnut ceases to thrive; 1,000 feet farther up and the oak is unable to maintain itself; at an elevation of 4,680 feet the birch ceases to grow; and the spruce fir at the height of 5,900 feet, beyond which no tree appears. The spreading, rusty-leaved rhododendron then covers immense tracts to the height of 7,800 feet, and the herbaceous willow creeps 200 to 300 feet higher, accompanied by a few saxifrages, gentians, and grasses, while lichens and mosses struggle up to the imperishable barrier of eternal snow.

De Candolle calculated that in France every 540 feet of vertical elevation are equivalent to a receding of one degree from the equator, while Humboldt estimated that in tropical countries every rise of 396 feet is equal to one degree of latitude north. I also heard a great deal said about acclimatizing plants. "Undoubtedly," said an enthusiastic grower, "we can, right here in Orange County, acclimate the mango, coffee, chocolate, pepper, vanilla, nutmeg, cinnamon, tea, licorice, and indigo." Thus grouping together plants of widely varied hardihood is often encountered; for instance, the three last mentioned plants are sufficiently

hardy to be grown over a large portion of the United States, yet they are classed with plants strictly tropical in character.

The acclimatization of plants, although a subject frequently alluded to, has no tangible support or foundation on facts. A species of plant is either fitted or unfitted, either hardy or tender, in any given climate or locality. It is a question to be decided by trial. If a species of plant proves to be tender in any country there is no known method by which its constitutional hardiness can be increased. If the coffee plant, *Coffea arabica*, is too tender to stand the climate of Orange County, Florida, there is no known process by which it can be made to do so. Acclimatization in this respect is a myth. About noon on the 6th of February I went aboard the steamboat, on Lake Tohopekaliga, which at once proceeded to the lower end of the lake, where the work of canal dredging is now in operation. After two hours' sailing the mouth of the canal was reached; here the boat was turned round and allowed to drift, stern foremost, into the canal. Floating with the current, the dredge-boat was reached in about one hour, being a little over three and a half miles from the mouth of the canal. The operation of the dredging machine is very interesting to a stranger. This ponderous affair creeps through the swamp at the rate of twelve feet an hour, leaving in its trail a canal about thirty feet wide and six feet deep. Still more interesting is the result to be achieved by the comprehensive system of canal cutting, and draining lands, of which this is but a commencement. This system involves the drainage of many millions of acres of the richest lands in Florida, acres which at present are of no value whatever, or of so little as not to be worthy of consideration among the enumerated products of the country. The vertical face of the cutting shows a stratum of decayed and partially decayed vegetable matter varying from eighteen inches to several feet in thickness; this is underlaid, for the most part, with sand. Portions of the cutting run into a hard, somewhat tenacious, clay-like substance, which crumbles when exposed to the weather. The dredge deposits the excavated material on the bank, where it soon becomes covered with a growth of the surrounding vegetation. A part of the cutting which was thrown out shortly after operations commenced last July was leveled and sown with jute seeds, and in a few weeks the jute plants were six feet high, when the cattle which roam at liberty over the country found that the jute plants were palatable and speedily devoured them; the stumps which the cattle left indicated a robust growth. This shows that the soil only requires draining to be immediately available for crops. It also furnished evidence of the lowering of the water, a fact conceded by the cattle owners, who stated that they had rarely, and only in specially dry seasons, seen cattle in that particular spot, but which they could now approach on dry land. Since the commencement of the work last summer Lake Tohopekaliga had been lowered 38 inches.

This canal will connect the last-mentioned lake with a smaller one

called Lake Cypress, which covers about 12 square miles. The winding river which connects these lakes is about 15 miles in length; the connecting canal is about 4 miles long. When I started for this point, my intention was to return to Kissimmee City by the steamer; but being urged to embrace the rare opportunity of seeing more of the country, I accepted the further hospitalities offered. On reaching the lower end of the canal we met a boat which had just arrived from Lake Walk-in-the-Water with a party of tourists who were thus far on their route to Kissimmee City. Mr. Disston then made the following arrangement for me: The tourists to be taken to Kissimmee City by the steamer. The boat from Walk-in-the-Water to proceed to Tiger Lake and remain there until our arrival. The officer of the steamer to telegraph from Kissimmee to Fort Meade ordering a conveyance to meet me at Lake Walk-in-the-Water and carry me from thence to Fort Meade; in the mean time I was to accompany the party as far as Kissimmee lake. In looking over the dredge-boat I observed that a part was fitted up for sleeping accommodations for the workmen. Thinking that these would be rather unhealthy lodgings, I asked the superintendent about the health of the employés, and he stated that since the first commencement of the work of building the dredge, more than twelve months previous, an average number of twelve men have been employed and not one of them has lost a day's work from sickness, and most of them had been employed from the first. He also said that they found no inconvenience from heat, as most of the time a cooling breeze prevailed, and the nights were exceedingly pleasant and agreeable. This is owing to the proximity of the ocean, and the narrowness of the peninsula. The Gulf of Mexico on the west and the Atlantic ocean on the east furnish cool breezes almost constantly. I found this to be the case during my stay; in the sun it would be very warm, but in the shade it was agreeable, and I was told that the climate is very uniform in this respect.

Early on the morning of the 7th a movement was commenced towards transferring the party to a smaller steamboat which was lying in the Kissimmee River about half a mile from the canal. It will be readily understood that as the dredge-boat advances the water from the lake follows it, and as the boat is now nearly four feet lower than where it started to cut, the overflow is sufficient to cover the surface two feet or more in front of the boat, extending laterally to a considerable distance before it finds its way to the lake below. This flooding provided plenty of water to float a small boat between the canal and the river. In a short time the transfer was made and the boat was steaming down the river towards Lake Cypress.

Cypress Lake is about 60½ feet above tide water. Emerging from the lake the river is again entered and followed until reaching Lake Hatchnaha. Any attempt to describe the crookedness of these rivers would, I fear, do them great injustice. It is difficult to distinguish any m gin to these rivers. The fall is so slight that the water appears to sp

over the adjoining lands through the lower sinuosities, not entirely covering the surface by any means, as the many dry hillocks and banks covered with low-growing willows and other vegetation sufficiently prove. Rabbits also abound. These animals appeared to me to be rather out of place in these swamps, but they make their homes there, and probably furnish an occasional choice dinner for the wily alligator. To show the food value of these waters, a hook with line attached was dropped overboard and dragged astern of the boat. In a few moments a fish was drawn up which weighed over 10 pounds. This was repeated several times with a like result, showing that it was a merely mechanical operation to fill the boat with fish. These fish, I was told, are a species of bass, and, as I can testify, are a good article of diet.

Lake Hatchnaha is 60 feet above tide-water, and covers about 15 square miles. Passing through this lake we again come to the river, which is followed until Lake Kissimmee is reached. From Lake Cypress to this point, following river and lake, is about 19 miles. A canal between 3 and 4 miles in length will, in a short time, form the connection between these two lakes, and take the place of the present meandering water way.

Before coming here I was under the impression that this whole region of country was one continuous swamp as far as the eye could reach. But this is very far from being the case. We have not, so far, appeared to be more than a few miles from vast pine forests, and with a field-glass could readily distinguish herds of cattle quietly grazing among the trees. At a point not far from the entrance to Kissimmee Lake the lands showed considerable elevation, and for some distance the river passed between banks probably six or more feet in height. These lands are undoubtedly well adapted for fruit culture; what I could see of the soil showed that it was fertile. I was informed that General Sanford had selected lands near this locality, of which he proposed to plant 1,000 acres in lemons. Kissimmee Lake covers over 40 square miles and is 59 feet above tide-water. After entering this lake the boat was headed towards the eastern shore, and after an hour's sailing a landing was made on the property of Mr. Shiver, an old settler in these parts, who gave me much useful information concerning the resources and capabilities of the country. Mr. Shiver's business is mainly that of raising cattle. He does not cultivate many crops, and these only for family use. He has a small plantation of sugar-cane, which supplies him with sugar and molasses. I saw in his warehouse several barrels of sugar, a sample of which I brought with me. On his bottom land the cane grows to a length of 15 or 20 feet and very stout; it does not require resetting oftener than once in eight or ten years. There were several thousands of acres of land lying between the shores of the lake and the pine forest of the same quality as that where this cane was growing. The pine lands were between 2 and 3 miles distant from the lake at this point. These pines furnish material for

house building. Mr. Shiver had recently erected a dwelling-house, and it occurred to me that our northern architects might glean useful hints from the dwellings here. Northern houses are constructed for winter protection rather than for summer comfort, and it seems possible that they might be made with a greater degree of adaptability to the exigencies of climates where cold winters are succeeded by tropical summers.

In reply to inquiries relative to the healthiness of the people, insect annoyances, and so forth, Mr. Shiver said, "We are healthy enough; mosquitoes are sometimes troublesome, but as a general thing the evening breeze blows them away. Fleas are occasionally troublesome, especially if hogs are allowed to come near the house; we have no trouble from snakes."

After leaving Mr. Shiver the boat was headed westward, and reached the shore shortly after dusk. An encampment was made under the spreading branches of a huge live oak; a fire was soon started which lighted up the wealth of moss which draped and festooned the surrounding trees.

With regard to the production of sugar, it is beyond doubt that these lands, after being drained, are especially well fitted for the growth of the tropical sugar-cane. As far as I have seen—and there is every reason to presume that all of the lands to be influenced by the drainage system are of a similar character—the surface soil is composed of decomposed vegetable matter; this varies from one foot to many feet in depth, and, so far as organic matter is concerned, it is apparently inexhaustible. Drainage is only the first step in the work of reclaiming these lands. There are large tracts where the vegetation has been kept down by cattle which may be rendered arable by ordinary plowing, but the greater portion will be most economically brought into condition by the use of steam as a motive power. Heavy plows could then be used to turn over the tussocks, canes, and rough vegetation, which, after being dried in the sun, could be gathered into rude piles, burned, and the ashes spread over the land.

The climate here is equally favorable to that of Cuba for working up the cane. Frosts are almost unknown, and when they do come are so slight as not to injure the cane, so that the work of manufacture can go on throughout the winter, or, for that matter, throughout the year at any time when desired. Cane is pressed at all seasons in this part of Florida; if it is not convenient to grind it in October, it may be kept uncut until June. Again, the cane will ratoon for ten years or more before replanting is essential. In Louisiana from 25 to 30 per cent. of the best cane has to be used for replanting. These are important factors when applied to an industry of this kind.

Another favorable feature is the great stretches of pine forests which abound in proximity to the lower lands. These will afford the best tions for settlements—high, dry, and as healthy as pine forest

make lands of this character. The material for building, and for what little may be needed for fuel, will also be yielded by these woodlands. Other crops can also be cultivated, such as corn, hay, and most all kinds of culinary vegetables. All varieties and species of melons can be produced in great perfection; rice, as a matter of course, will flourish well.

Nowhere have I seen, what appears to me, more favorable conditions for tea culture, or lands better adapted, than can be selected here. The tea plant, although hardy enough to stand the climate of Washington, gives an inferior product wherever it is subjected to frost. The rainfall in Florida is also more favorable for leaf production; enough of the plant may be grown, at least, for domestic use, even if it cannot be produced profitably as a commercial commodity, which lessens in probability as the prices of teas fall.

February 8.—Our peaceful slumbers were interrupted at an early hour this morning. Camp beds and tents were shipped, and the boat started before daybreak. Shortly afterwards we entered Tiger Creek and followed its intricate windings for two hours, when we reached Tiger Lake. At many points on this creek the dry meadows and pine trees were seen close at hand. The margin of the river is studded with masses of willows and ashes, and in many places these were densely covered with the night-blooming *Ipomœa bono nox*, which had been in a blaze of beauty during the night, as could be seen from the thousands of closed and closing flowers which we passed, many of which we gathered from the overhanging branches as the boat brushed through them. These thickets of low trees seem to be selected by many kinds of birds as their resting places for the night, who fled as the boat approached them, the tardy ones being hastened by the whiz of a rifle ball, its only effect.

After crossing the end of Tiger Lake, a halt was made at the mouth of Roney's Creek, where we found the boat which was to convey me farther, as previously arranged. On leaving Mr. Disston and the other gentlemen of his party, I endeavored to express, as best I could, my keen appreciation of the many kindnesses they had shown me, and their great desire, which was constantly evinced, to assist me in every way within their power. To Col. Jas. M. Kreamer, chief engineer of the Florida Land Improvement Company, who is perfectly familiar with all parts of this country, I am indebted for a large amount of useful information connected with these lands. Also I would mention that Captain Rose, the superintendent in charge of dredging, and master-mechanic of the company, rendered me great service in my investigations, even at the expense of his own personal comfort and convenience.

Our course now lay up Roney's Creek. As further progress depended mainly on manual power, I found that in the distribution of labor I was delegated to act as helmsman, while my two shipmates, so to speak, were to furnish the motive power with poles, one on each side. Our movements were continuous, although our progress was slow, but in due

time we reached Lake Rosalie, which seemed to be nearly circular, 5 or 6 miles in diameter, and as beautiful as its name. After sailing a short distance round the margin of the lake we again entered the river which connected with the lake we were aiming to reach.

So far as relates to crookedness, this river could not easily be excelled. The current was stronger, owing to the 8-foot fall in the 10 or 12 miles, as the river goes, between the two lakes. The surroundings were also different; we were now sailing through a tolerably dense growth of trees; in some spots the branches met overhead, forming a welcome screen from the hot sun, which, taken in connection with the necessity of turning the boat to a right angle every few minutes, made my position uncomfortably perplexing. At certain points our progress was arrested by sunken logs. These impediments were overcome by the men leaping into the water, and lifting the boat over the obstruction. The effect of these baths seemed to be invigorating, and were hailed with pleasure, but my position of duty denied me this luxury. These occasional *soundings* showed that the water had an average depth of about 3 feet.

The trees seemed to be composed mainly of ashes and maples, mostly thickly studded with *Tillandsias* and ferns; the undergrowth is very dense; occasionally a large beautiful fern could be seen on the banks. I could only afford a stray glance at the side vegetation; my attention was mostly directed to the bank which seemed to be constantly about six yards distant and right in front of the boat.

As the sun was declining behind the trees we entered into Lake We-olw-ya-kapka, commonly called "Walk-in-the-water." A favorable breeze was blowing; the mast was elevated and sails spread; the four or five miles were speedily passed over, and at dusk we stepped ashore at the young city of Hamburg, in Polk County. My first inquiry was about the conveyance which I expected to find waiting at this point, but it had not arrived; I could do nothing but wait patiently. This is a very new settlement with a resident population of three persons. The evening was spent around a camp-fire, and sleeping accommodations were provided under a thatch of palmetto leaves. The fatigue of the day made sleeping an easy matter. When I awoke next morning the sun was shining, birds warbling, and alligators sporting in the lake; a saucy-looking chameleon was perched on my valise, and paid but little attention to my movements, gliding up the posts of the rude structure, disappearing under the palmetto leaves, and momentarily appearing at some unexpected spot—a soft-eyed, gentle, and friendly looking creature, the very essence of animal activity. In the woods the *Vitis vulpina*, and what appeared to be a form of *Vitis labrusca*, were frequent; blackberries in full flower. The grapes had made about 2 feet of young growth, so that their resting period must be of short duration. Along the margin of the lake, among tall palmetto trees and thick undergrowth, the warmth was oppressive; at some places the bank wa

abrupt, but it was generally sloping for 200 yards from the water, the higher points probably 30 or more feet above the level of the lake.

The monotony of the day was relieved by the arrival of two boatmen whom I had seen for some time crossing the lake. They proved to be alligator hunters, and I learned from them that they had killed sixty-five alligators within a week. They kill them for their skins, which are an article of commerce. The largest they find is about 12 feet in length, and but few of them; the average length is 8 feet.

Towards evening the anxiously looked for conveyance arrived, and preparations were made for an early start in the morning. From this point to Fort Meade the distance is about 25 miles. The road lies mostly through pine forests; the surface of the country is of a gently undulating character, varied by long stretches of nearly level, wettish lands, with a black surface-soil of no great depth. Occasionally acres of the dwarf palmetto had to be passed through, their creeping stems crossing the pathway in every direction, making the most disagreeable traveling which it is possible to conceive. This is the worst plant to encounter in clearing Florida lands. The white and blue *Violas* were in flower everywhere; a species of *Lupinus*, having whitish, silk leaves and long spikes of bluish flowers, was plentiful; a Southern papaw, probably *Asimina pygmæa*, was in full flower on flat grounds, and in low, wet places plants of many kinds were blooming profusely. Several small lakes were passed; some of these seemed perfect gems, nearly surrounded by sloping grassy banks, with scattering pine trees, and in the lower places, with a thicket of oaks and other kinds of hard-wooded trees and shrubs. For a distance of 20 miles no habitations of any kind were seen; nearing Peace River the land was more undulating than any that I have heretofore seen in the State. They are also of a more fertile character; this was demonstrated by the dark green appearance of the small orange groves which now and then came into view as we preceeded westward, their density almost hiding the low homesteads around which they had been planted.

We reached Peace Creek at dusk; crossing the river on a flat-boat, we found quite a steep bank before us; on reaching the top, a few steps brought us to the town of Fort Meade. The soil, even on the higher grounds here, is dark colored and produces good crops of vegetables. Corn had reached a foot in height, but was suffering for want of rain. Orange trees showed vigorous growth. The finest looking trees which I have seen in the State were clustered round an abandoned dwelling house on the banks above Peace River. The ground was neglected and weedy; but the luxuriant growth of weeds gave positive evidence of the fertility of the soil; and the fragrance of the orange blossoms saturated the atmosphere as their dropping petals sprinkled the dilapidated building.

I had letters of introduction to Dr. Mitchell of this place. He received me cordially, and was unremitting in his attentions to make my visit

agreeable, and I found that his knowledge of the country and its capabilities was as extensive as it was discriminating, and was of great service to me. As I had now reached a point unknown to railroads and steamboats, further progress became a matter of genuine anxiety. I wished to return to Jacksonville by way of Tampa and Cedar Keys, and the question to be solved was, how best to get over the sixty odd miles of territory that lay between Fort Meade and the waters of the Gulf of Mexico. Here Dr. Mitchell came to my aid. He proposed driving me to Bartow, a distance of 12 miles, where I might find the mail stage for Tampa, and in the event of that means of conveyance failing, he would take me the whole distance, so that I might reach Tampa in season to meet the boat for Cedar Keys.

On the morning of the 12th an early start was made, with a view of driving leisurely through the country. In crossing a tributary of Peace River, a rapid clear stream, I found the dogwood trees in full flower, and the air was full of the scent of the yellow jessamine, *Gelsemium sempervirens*, which was abundant everywhere.

In all sections of the State that I have seen, good, rich spots of land will be found in low, flat places, generally swampy and wet, and considered of little value; but the soil is black and productive, and I would remark that these rejected lands will at some not distant day be considered the most valuable in the State, when ditching and draining are properly recognized factors of improvement. Here, however, the higher lands were dark colored, owing to the decayed vegetable matter which they contained. In digging into this soil I found the subsoil grayish colored, evidently from the leachings of the decaying vegetable matter on the surface. Very good vegetables are produced on this land, and some corn is raised; this is a small-eared corn, and an average of 20 bushels per acre is considered a good crop. I did not ascertain whether or not any one had tried the large-grained varieties of corn from South and Central America, but one would suspect that they would do well here; at least they are worthy of trial.

Several orange groves were passed and some I visited. The lands between Fort Meade and Bartow are mostly flat pine lands, but not wet. Oranges seem to do specially well here; a short visit was made to an old grove, the property of Judge Wilson. The soil in this grove was dark-colored sand; most of the trees were 25 years old, some of them older, and some more recently planted; but young and old showed to be in the best condition of health and well covered with fruit. The larger portion of the crop had been gathered, but many trees had not been disturbed. A large tree was pointed out from which as many as ten thousand oranges had been picked in one season; the crop for this year, which had recently been taken from it, amounted to seventy-eight hundred oranges. This is the largest orange tree which I have seen, and looking at its immense sides it was evident that its capacity for bearing fruit was very great. On account of being so far from a shi

ping point, the returns are not nearly equal to those received by orange-growers more favorably located. I understood that the fruit from this section is transported in bulk to Tampa, where it is sold to shippers who sort and pack for market, which is not considered the most profitable system for the grower, as much of the fruit is injured in transit and by the frequent and oftentimes rough handling it is subjected to.

Sugar-cane is found to do well in these rich lands, and is very generally grown for domestic use only. The cane patch is quite as common as the cabbage patch. Tomatoes and other vegetables were well advanced, but had been checked, as I was informed, by a slight freeze the previous December.

On reaching Bartow I learned that I could avail myself of a passage in the mail stage to Tampa, and I was thus enabled to relieve Dr. Mitchell from the tedious and time-absorbing journey which he proposed to undertake in my behalf.

Before daylight on the morning of the 13th I was on my way to Tampa. The air felt cold; a dense fog prevailed, which continued until about an hour after sunrise, when it became clear and warm. The road passes through a fine country heavily timbered with pine. Many new settlements were being opened and planting commenced. Near every new homestead the young orange grove could be seen, or preparations being made for planting the trees. The older settlements are more or less surrounded by groves, and if, in peering between the stately pine trees, the eye caught a glimpse of a particularly green spot in the distance, it indicated an orange grove. The color of the foliage of the orange in these comparatively rich lands is one of the most striking features of the country.

An annoying incident which was frequently met was the smoke from forest fires. Most all parts of Southern Florida are fired during the winter months; the lands are burned over by the owners of cattle, under the supposition that it improves the grazing. This can only have a disastrous effect, as it destroys every vestige of vegetable matter on the surface, and there are no lands on this continent where vegetable matter is more needed in the soil than it is in these sandy lands. The pine trees suffer from the flames, and there must be a great destruction of wood from this cause; of course, all young growths are injured, if not destroyed. This burning ought to be prohibited by law as being in every way injurious. It has been stated that in Texas, where laws against burning are in operation, the pastures are yearly improving in value. This would seem to be a matter in which forestry conventions might do some good work by properly directed efforts.

We reached Hillsborough County about noon. Vegetation appeared to be somewhat more advanced as we neared the coast. The pond lily, *Nymphæa odorata*, was seen in fully expanded flower. Many lakes, some quite extensive, were seen in passing; they are always beautiful, but I thought that their beauty was much enhanced by the undulating

character of the land surrounding them. Here, in Southern Florida, this might be termed hilly country, but it is all of a smooth, sloping character, no abrupt bluffs, but every portion available for cultivation, with no greater surface of low and wet ground than is found in similar land anywhere in this country. When these lands are brought into cultivation their fertility will be recognized.

As we proceeded westward, the country through which we passed became less picturesque. The lands were flat and wet, but the soil appeared to be good, and only required ditching to be as profitable for all farming purposes as any of the higher lands, and for culinary vegetables, sugar-cane, and grasses, would probably be preferred.

Tampa was reached after a ride of fifteen hours, and on making inquiry I learned that the boat for Cedar Keys would not sail before the morning of the 15th.

The lands immediately surrounding Tampa appear to be of a very light, sandy nature. My observations here were not extensive nor prolonged. Orange groves are to be seen in various stages of growth, and the few that I saw would not warrant an opinion as to the general condition of groves in this section. The climate is sufficiently warm to admit the successful growth of many of the hardier kinds of tropical plants. A tree like Bignonia, with clusters of yellow flowers, was blooming profusely. This I recognized as *Bignonia stans*, a tropical species. An acacia-like plant, having yellow, fragrant flowers, was probably *Vachellia Farnesiana*. Oleanders, with huge dilapidated stems, seemed, from their position, to have been planted as street trees. Guavas, and the alligator or avocada pear, *Persea gratissima*, here find a congenial climate. The gardens were gay with double scarlet geraniums, *Vinca rosea*, *Phlox drummondii*, petunias, and verbenas. A fine plant of *Russelia juncea*, planted on a slight mound, was full of flowers. In an out-of-the-way corner I observed a small area covered with the Johnson grass, *Sorghum halapense*, which had made over two feet of growth, and in good condition to cut for cattle food or for hay. This looked like an experimental plat, and it gave evidence of the value of this grass for this region of country.

One of the greatest wants in Florida is that of food for live stock. Northern grasses and clovers are of small value; they are not adapted to the climate. Lucerne, *Medicago sativa*, has the reputation of succeeding well in warm climates, and would doubtless flourish in the rich bottom lands when once they are fitted for culture. This being a perennial, noted for a propensity to send its roots deep into the soil, would be almost as permanent a plant as the dwarf palmetto, and infinitely more useful. Lucerne is one of the most ancient of cultivated plants, and as a forage plant for dry, warm climates has always been held in high estimation. Among rapid-growing grasses none excel the Italian rye grass, *Lolium italicum*. Seeds of this grass, sown in November would produce a crop fit for cutting in April for hay. The winter seasc

being also the dry season, would be so far unfavorable to continued growth, but the want of rain could be met by a proper selection of soil; the worst selection would be high and dry fields; the best, a thoroughly drained swamp. But I look upon the Johnson grass as having greater prospective value than either of the plants named. In Alabama and in others of the Southern States it is proving to be one of the best grasses for hay or for feeding in the green state, that has so far been introduced to cultivation. This grass has long been known, but its persistent growth, and the difficulty of eradicating it from cultivated fields, caused it to be regarded as a nuisance. Its greatest fault is its greatest merit. A few days ago, in Polk County, in conversation with an Alabama farmer, I asked him what he found the most profitable crop to raise in that State. He promptly replied hay. To the further question as to what grasses he cultivated for this purpose, he answered, the Johnson grass. He stated that he made three cuttings yearly, and from these his returns averaged five tons of hay from an acre. This is grown on good bottom land, and all the cultivation it receives is to plow it down once in two or three years, then give it a very thorough harrowing, and an increased growth ensues. A portion of the roots are thus destroyed, which prevents them from becoming too thickly matted, keeps up the fertility, and increases the growth. It would seem that a plant so well adapted to a warm, sunny climate will ultimately prove of great value all through this southern country.

At noon to-day the thermometer indicated 82° F. in the shade; towards evening a thunder storm passed over, with a light rain, the first I have seen since leaving Jacksonville.

On the morning of the 15th I went aboard the boat for Cedar Keys. The sail down the bay was exceedingly pleasant and interesting. A flock of pelicans, seemingly intent in fishing for their breakfast, was a novelty to some of us who had never before been on these waters. In due time we entered the Manatee River, making calls at several landings. Here I had pointed out to me the house of Madame Atzeroth, calling my special attention to some green bushes which I was informed were the coffee plants which produced the berries for which this estimable lady received the premium offered by the United States Government for the first pound of coffee produced in this country. I had heard this story before; indeed it had often been recited to me as an evidence of what could be produced here. Being familiar with the transaction which led to its origin, I took occasion to correct any erroneous impressions which were evidently popularly connected with it. In the first place, the Government never offered any premium for coffee. A package of fresh coffee berries was sent to the Department of Agriculture, under the impression that a premium had been offered by it for such a product, and as fresh coffee seed is rather difficult to procure, and was required by the Department, these were purchased and paid for as a matter of course. But this does not settle the question regarding prof-

itable coffee culture on the lands bordering the Manatee River; the season of sufficient warmth is too short, and the protection which the plants require will prevent its profitable culture on an extended scale.

Leaving the river the boat was headed towards the Gulf; Egmont Key was passed, the light-house seen in the foreground backed by an orange grove; and as the sun dipped below the horizon, we were speeding quietly through the placid waters of the Gulf of Mexico. As the evening advanced a light breeze was felt from the west, which, together with the dampness of the atmosphere made it uncomfortable to be on deck, while the beauty of the clear moonlight on the water made it equally uncomfortable to be confined in the cabin. Early in the morning the vessel anchored opposite Cedar Keys. The captain informed me that the entrance to the harbor was as crooked as the letter S, and he would not attempt to reach it until daylight would enable the pilot to see the buoys. Compared with recent experiences, I considered this a very mild degree of crookedness for a Florida river.

We landed in good season to get the train for Jacksonville. The first portion of the journey leads through tracts of swampy woodlands. Near the coast an occasional cedar tree could be seen, but they have mostly been cut for use. This is the *Juniperus virginiana*, variety *bermudiana*, or pencil cedar of Florida. The wood is softer and freer from knots than the common Northern form of this tree, and the pencil manufacturers obtain their cedar wood from it; factories for working it into shape were seen as we approached the landing at Cedar Keys.

In traveling through these swampy woods I have been particularly interested in noticing a striking peculiarity of nearly all kinds of trees growing in water, or in places frequently flooded with it. The peculiarity to which I allude is a prominent bulging of growth near the ground. Many trees have a butt which would measure 2 feet through near the ground, and would dwindle into a stem from 8 to 12 inches in diameter 4 feet above this widest point. This process of growth does not seem to be confined to any single species of tree, and although it is most pronounced and conspicuous in deciduous cypress (*Taxodium distichum*), yet it could be seen in ashes, maples, slightly in oaks, and quite distinctly even on some pines, but only in trees growing in wet ground. What particular purpose is served by this abnormal growth, or what occasions it, I am unable to say.

As we proceeded onward the face of the country indicated improvement; such glimpses as could be had from the rapidly moving cars plainly showed, in the general appearance of the orange trees, the effect of two degrees of latitude, as compared with those seen in Hillsborough and adjoining counties.

I regretted my inability to see more of orange culture in the middle counties of the State. I am convinced that much might be learned from a careful observation of orange groves from north to south in their freedom from diseases; time of ripening of different varieties;

adaptability to particular locations, both in regard to soil and climate; modes of management, and many other details which might be enumerated.

A brief delay near Gainesville allowed the opportunity of seeing one of the most pleasant-looking places which I have seen in the State, with many fine improvements and comfortable-looking dwellings.

The young orange groves in this section appear healthy and of good color, but the same cannot be said of many of the older trees. Indications of unhealthiness and disease were but too apparent in the color of the foliage, and dead branches on trees which, seemingly, had not recently been trimmed. This may all be referred to unfavorable climatic influences, which are beyond the power of the cultivator to control.

After reaching Jacksonville I immediately made arrangements looking homewards. Near Charleston peach trees were observed in full flower, looking like huge bouquets, in striking contrast to those seen the previous day in Florida, where the blossoms were scattering and unpromising.

In due time Richmond came in view, and was entered in the midst of a sleety snow-storm. In twenty-four hours I had exchanged a climate of tropical heat for one of arctic proclivities.

Respectfully submitted.

WILLIAM SAUNDERS,
Superintendent of Gardens, &c.

Hon. G. B. LORING, *Commissioner.*

OBSERVATIONS

ON A

GOLD ORNAMENT FROM A MOUND IN FLORIDA.

BY

CHARLES RAU.

REPRINTED FROM THE SMITHSONIAN REPORT FOR 1877.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1878

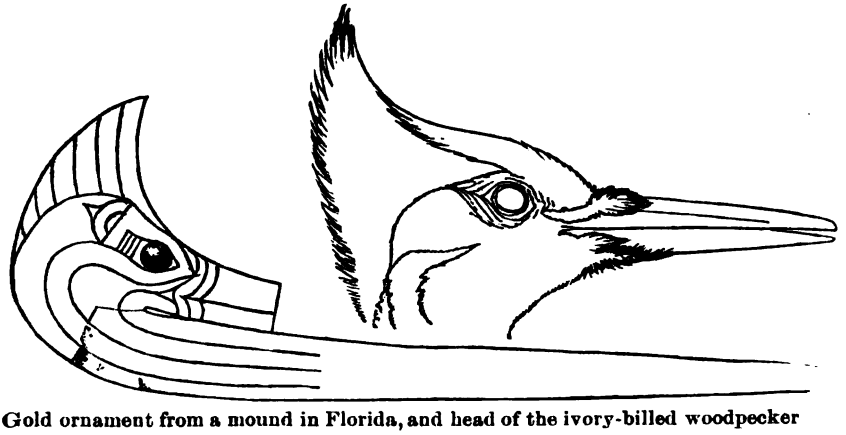
OBSERVATIONS ON A GOLD ORNAMENT FROM A MOUND IN FLORIDA.

By CHARLES RAU.

In December, 1877, Mr. Damon Greenleaf, of Jacksonville, Florida, sent for examination to the National Museum a curious relic of gold, lately discovered in a mound in Manatee County, Southern Florida, with a request for information as to its probable origin and use.

The accompanying illustration represents the object in question reduced to one-half of its natural size, the original measuring exactly nine inches from the point to the middle of the opposite curve. It is cut from a flat piece of gold plate, not quite a millimeter in thickness, and somewhat thinner toward the edge. The specimen is broken in two pieces, as indicated by the dotted line in the figure; but the two parts fit well together, and thus the original character of the object remains unaltered. On the whole, it is in a good state of preservation, though the effects of long exposure are plainly visible. Both faces appear bright and smooth, and the engraved lines, which represent exactly the same pattern on both sides, seem to be as fresh as on the day when they were traced.

Little need be said concerning the shape of the ornament, considering that all its features are distinctly expressed in the cut. The maker evidently intended to represent a bird's head, the neck of which forms a blade-like prolongation, and the grotesque execution clearly illustrates



Gold ornament from a mound in Florida, and head of the ivory-billed woodpecker

the curious taste characterizing the ornamental work of the N

to represent a bird's head in the peculiar manner here exhibited. The eye of the bird, it should be stated, has been formed with great regularity by the process of punching from the under side, and perfectly resembles in size and convexity the head of a common brass tack. However clumsy the design of the object may appear to a common observer, the ornithologists of the National Museum have discovered the prototype that was before the aboriginal artist's mind. The truncated bill and recurved crest leave no doubt that he intended to represent the ivory-billed woodpecker (*Picus principalis*, Linn.; *Campephilus principalis*, Gray), a bird quite frequent in Southern Florida, but not found at any great distance from the Gulf of Mexico. To facilitate comparison, a half-size sketch of the head of the ivory-billed woodpecker is placed in juxtaposition with the cut representing the aboriginal relic.

The composition of the gold plate from which the specimen is made indicates its post-Columbian origin. Having been forwarded, through the courtesy of Mr. E. B. Elliott, chief clerk of the Bureau of Statistics, to the Mint at Philadelphia, for the purpose of ascertaining its weight and composition or fineness, it was found to weigh 1.53 ounces (troy), and to consist exclusively of gold and silver, in the proportion of 893 parts of gold to 107 parts of silver. Consequently, the amount of gold therein contained is 1.366 ounces, and of silver 0.164 ounce (troy). The metal value of the relic is twenty-eight dollars and forty-five cents. According to Mr. Elliott's statement, its composition corresponds almost exactly with that of the "ounce" of gold or quadruple of Spain bearing the date of 1772; and this circumstance is not without significance, in so far as it seems to point to the source from which the material of the figure was derived. It may have been given by Spaniards to some Indian, who fashioned it, according to his taste, to serve as a totemic emblem or ornament, perhaps designed to form a part of the headdress; for, though a small elongated aperture is formed by the inner curve of the bird's neck, I hardly deem it likely that the object was intended for suspension. The Florida Indians, it is well known, paid particular attention to the decoration of their heads, and hence it is not an improbable conjecture that it once embellished the crown of some chief or brave while living, and was afterward placed in his grave, in accordance with aboriginal custom.

Whether the figure was brought into shape by hammering a large gold coin or a bar of gold, or was made from a piece of sheet gold, cannot now be decided. The surfaces certainly look as though they had undergone the process of beating; but it is just as likely that the ornament was made from a piece of gold plate furnished by whites. That the Indians were skillful in working metal in a cold state is shown by the implements and ornaments of copper found in various parts of the United States, more especially in the neighborhood of Lake Superior,

modern Indians practise the art of working silver dollars, beating and cutting them into tasteful gorgets, ear-rings, and other objects of personal adornment. On the other hand, there is no ground whatever for supposing that the Indians north of Mexico possessed the skill of casting gold, and far less of producing an alloy like that of which the Florida ornament is composed.

While I am of opinion that the material of the relic was obtained from whites, I ascribe (as stated) the work itself—that is, the cutting out of the figure and the tracing of the lines—to the agency of an aboriginal artist. The ornamental lines, though incised with a steady hand, are not uniform in width, and in some places the tracing forms a double line, as though the implement used in lieu of a graver had not been provided with a sharp point. A knife which has lost its extreme point would produce such lines; perhaps also a pointed flint. The latter alternative, however, is hardly admissible, considering that at the time when the object was made, implements of such primitive character probably had been superseded by more efficient instruments of iron or steel. The North American Indians, like other savages, were not slow in recognizing the superiority of the white man's tools, and adopted them without hesitation.

Though it would be hazardous to pronounce a definite opinion concerning the age of the relic, it may be assumed that it is not very old. Its origin may not date back more than a century. It was perhaps made during the second period of Spanish supremacy in Florida, which lasted from 1780 to 1821, when the province was ceded to the United States. The ornament was taken *from the centre* of the mound, and doubtless formed a part of a primary burial. This fact affords an additional evidence that mound-building was continued in this country after its occupation by Europeans. "The man who dug it out," says Mr. Greenleaf, "had no idea that it was gold. He had been digging all day, and was just giving up the work, when, with a final desperate blow, he struck, broke, and brought to light the gold ornament. He then explored the rest of the mound carefully, but found nothing but fragments of pottery and crumbling bones."

Purely aboriginal relics of gold appear to be extremely rare in this country. According to Colonel Charles C. Jones, Indian beads composed of that metal have been met with in Georgia. He says: "Gold beads—evidently not European in their manufacture—have been found in the Etowah Valley, in the vicinity of the large mounds on Colonel Tumlin's plantation."* This statement is corroborated by Mr. M. F. Stephenson in an article on ancient mounds in Georgia, which was published in the Smithsonian Report for 1870. I am not aware that Indian relics of gold have been found in Florida in modern times; but mention is made of a small gold bell obtained in 1527 by the party of the unfortunate Pamphilo de Narvaez, immediately after his landing in Florida. It wa

discovered in one of the large houses (*buhios*), which the natives had deserted upon the approach of the Spaniards.*

We learn from the old accounts relating to the discovery and colonization of the large tract of land formerly called Florida that the aboriginal inhabitants were cognizant of the occurrence of gold in their districts. The grains of gold which the early Spanish visitors saw in the possession of the Floridians excited their cupidity, and inspired them with the hope of finding a second Mexico or Peru in the more northern portion of the new continent. Upon asking the Indians where the precious metal had been obtained, they were referred to the "Apalatcy" Mountains, in the north, from which rivers carrying particles of gold, silver, and copper were flowing. The Indian method of collecting these metallic grains is represented on plate 41, vol. ii, of De Bry's *Peregrinationes* (Frankfort on the Main, 1591), where the natives are pictured as using long tubes for this purpose. Jacques Le Moyne de Morgues, the artist of Laudonnière's expedition, to which the volume relates, probably drew the sketch from imagination, or according to what he had heard from the Indians, who were never noted for their veracity. The short Latin description accompanying the sketch closes with the statement that the Spaniards knew how to apply these treasures to their own use. Indeed, traces of mining operations which are ascribed to the Spaniards have been found in the gold district of Georgia. It would be foreign to my purpose to enlarge on this subject; but I will refer to two articles by Dr. D. G. Brinton, which treat of this early mining: one forms the third appendix to his excellent little work entitled *Notes on the Floridian Peninsula;* the other is published in the *Historical Magazine*, vol. x (1866), p. 137, under the title "Early Spanish Mining in Northern Georgia." Additional information on the subject is to be found in Colonel Jones's work, to which I have referred on the preceding page.

* "Un de ces buhios était si grand, qu'il pouvait contenir plus de trois cents personnes: les autres étaient moins vastes; nous y trouvâmes une clochette en or parmi des filets."—*Relation et Naufrages d'Alvar Nuñez Cabeça de Vaca.* Paris, 1837, p. 24. (Ternaux-Compans Collection.) The Spanish original was published in the year 1555 at Valladolid.

UNITED STATES CONSULAR REPORTS.

6

THE LICORICE PLANT.

REPORTS, FROM THE CONSULS OF THE UNITED STATES, ON THE LICORICE PLANT, LICORICE MANUFACTURE, AND LICORICE TRADE, IN ANSWER TO A CIRCULAR FROM THE DEPARTMENT OF STATE.

PUBLISHED BY THE DEPARTMENT OF STATE, ACCORDING TO ACT OF CONGRESS.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1885

LICORICE CIRCULAR.

DEPARTMENT OF STATE,
Washington, February 10, 1885.

To ——— ———:

SIR: In view of the large import into the United States of licorice, in its various forms—the import of the root alone, in 1884, amounting to 39,057,000 pounds, valued at $800,000—and believing that the plant can be grown in some portions of the United States, many parties interested herein have requested the Department to secure through its consuls resident in the licorice-producing districts, certain information, embraced in the following questions:

1. Does the plant grow wild, or is it cultivated?
2. What kind of soil and climate are best suited to its growth?
3. If cultivated, describe the mode and manner of its cultivation.
4. How long does it require to reach maturity?
5. Beyond the root is the plant or stalk utilized?

In addition to the foregoing you are requested to supply as much information as possible concerning the plant; the manner in which the root is prepared for the market; whether it is subject to any adulteration in its preparation for the market; the amount exported from your district to the United States, where it is raised, prepared, and how it is shipped hither, &c., in fine, everything which can be of service to parties engaged in the trade, or who contemplate the cultivation of the plant in the United States.

I am, sir, your obedient servant,

W. HUNTER,
Second Assistant Secretary.

CONSULAR REPORTS

ON

THE LICORICE PLANT, &c.

AUGUST, 1885.

THE LICORICE PLANT.

REPORT BY CONSULAR AGENT WHITMAN, OF HUDDERSFIELD, ENGLAND.

LICORICE AND ITS USES.

Before proceeding to give an account of the cultivation of licorice in this district, it may not be amiss briefly to quote from several authorities some facts regarding the introduction of the plant into England, its other habitats, uses in the pharmacopœia, &c.:

Licorice is cultivated throughout the warmer parts of Europe, especially on the Mediterranean shores, and its geographical limits travel eastward throughout Central Asia to China, where its cultivation is also prosecuted.

In the United Kingdom it is grown in Surrey and Yorkshire. The roots for use are obtained in lengths of 3 or 4 feet, and averaging in diameter from one-fourth to one inch. * * * The root is an article of some commercial importance on the continent.

Stick licorice is made by crushing and grinding the root to a pulp, which is boiled in water over an open fire, and the decoction, separated from the solid residue of the root, is evaporated in copper pans till a sufficient degree of concentration is attained, after which, on cooling, it is rolled into the form of sticks or other shapes, for the market. The preparation of the juice is a widely extended industry along the Mediterranean coasts; but the quality best appreciated in the United Kingdom is made in Calabria, and sold under the name of Solazzi and Corigliano juice. The licorice grown in Yorkshire is made into a confection called Pontefract cakes.

Licorice in various forms is a popular remedy for coughs, and it is largely used by children as a sweetmeat.

It enters into the composition of many cough lozenges and other demulcent preparations, and in the form of aromatic sirups and elixirs it has a remarkable effect in masking the taste of nauseous medicines, a property peculiar to glycyrrhizin.

A considerable quantity of licorice is used in the preparation of tobacco for chewing.

Commercial licorice paste is frequently much adulterated and often contains distinct traces of copper, apparently derived from the vessels in which the juice is inspissated.—*From the ninth edition of Encyclopædia Britannica* (*vol.* 14, *pp.* 687, 688), *now in course of publication in England.*

Referring to the writer's statement as to its growth in Surrey, I quote from Murray's Handbook to that county, p. 101:

At Mitcham we are in the midst of the great Surrey "flower-farms." The parish is a deep black mold, some hundred acres of which are covered wi[th] tions of lavender, rosemary, mint, peppermint, licorice, chamomile, and o[ther] for the use of the great London druggists, perfumers, and distiller[s] * * *

From information of a reliable character obtained at Pontefract, I gather that the plant is cultivated only at Mitcham as regards the county of Surrey, and, as appears from the above account, in but a small way for near consumption.

Referring to the Pontefract industry, the only important one in the British Isles, Murray in his Handbook for Yorkshire, third and last edition, 1882 (p. 359), gives the following account:

Licorice was first cultivated in England in the reign of Elizabeth (Stowe). * * * The plant, very graceful, with feathery leaves, is planted in ridges, and does not come to perfection until the fourth year.

The sandy soil suits it, and the fibrous roots are sometimes ten or twelve feet deep. These are dug in autumn, and pounded in the following winter; the juice thus extracted is boiled down and mixed with gum arabic and other ingredients, and mixed into large cakes. * * * The trade is slowly decaying since Spanish licorice is now imported free of duty.

As showing how widely diffused the growth of this plant seems to have been I find in an account of its introduction into England, given by McKenzie's Cyclopædia (unfortunately I cannot quote the article, not having the volume in the town), that it originally came from Germany. If true, the plant must indeed be a hardy one, since the German winters often rival those of the United States in severity. Further on, I shall again refer to the question of climate, naturally a very important one to growers in the United States.

Messrs. Chambers give an excellent account of the plant in their popular Encyclopædia, revised edition 1874 (vol. 6, p. 147), from which I may pertinently furnish a few extracts:

The roots of licorice * * * are a well-known article of materia medica, and were used by the ancients, as in modern times, being emollient, demulcent, very useful in catarrh and irritation of the mucus membrane.

The roots of the common licorice are chiefly in use in Europe. * * * It is cultivated in many countries of Europe, chiefly in Spain. * * * The roots are extensively employed by porter brewers. They are not imported into Great Britain in considerable quantities, but the black inspissated extract of them (black sugar or stick licorice) is largely imported from the south of Europe, in rolls or sticks packed in bay leaves or in boxes of about 2 cwt., into which it has been run.

Licorice is propagated by slips, and after a plantation has been made, almost three years must elapse before the roots can be taken up for use. The whole of the roots are then taken up.

Licorice requires a deep, rich, loose soil, well trenched and manured; the roots penetrating to the depth of more than a yard, and straight tap-roots being most esteemed.

The old stems are cleared off at the end of each season, and the root-stalks so cut away as to prevent overgrowth above ground next year.

The plant is propagated by cuttings of the root-stalks.

The root of the prickly licorice (*Glycyrrhiza echinata*) are used in the same way, chiefly in Italy and Sicily, Russia, and the East. The only American species is *Glycyrrhiza lepidota*, which grows in the plains of the Missouri.

CULTIVATION OF LICORICE IN ENGLAND.

Thinking that something might be learned from persons in the business residing at Pontefract, I visited this place armed with letters of introduction to several of the largest manufacturers there. Before entering on the method pursued for making the so-called "Pontefract cakes" from the licorice juice, I, perhaps, cannot do better than describe the system of cultivation, soil, &c., as obtained on the spot from three practical men, two out of the three being growers of the plant, which I was then told had been introduced into Pontefract by the monks, whose simple pharmacopœia embraced licorice root among the large number of herbs prepared by them for medicinal purposes.

The soil about Pontefract is well suited for the growth of the plant

being of a sandy, loamy character, though from all I could hear in this particular, a rich black soil would answer equally as well, the only requisite being considerable depth, to allow of the downward growth of the roots.

The beds are prepared by being well trenched, the width of trench and bed averaging 3 feet, having the appearance, when finished, of wide celery beds. Commencing early in April or late in March, a top dressing of good stable manure is applied, and then lightly covered over, leaving the trench, perhaps, 6 inches below the level of the raised bed. Buds and suckers, slips or runners, specimens of which (Nos. 1 and 2) are herewith forwarded to the Department, are then lightly stuck into the soil by one person—in the field I saw a girl was employed in this task—while another follows along with a small spud or (local) dibber with which holes are made at a distance of some few inches apart, and the buds and suckers inserted therein, say 4 inches below the surface—that is, the tops covered by about 4 inches of soil.

This forms the double crop, that is, the buds growing downwards producing licorice roots (specimen No. 3), the suckers forming buds for future planting, width of bed permitting of cross rows of plants. The buds and suckers are left in the ground for three years and a half, no crop being obtained until the September following the fourth spring. The first manuring is sufficient, the plants being weeded as required during each summer. They do better in a hot, dry summer after the first season, the last five or six wet years before that of 1884 not having proved good ones for the crop.

Frost, it seems, does not harm the plant, though in this matter I judge that our very severe New England winters might prove harmful—the coldest season in Yorkshire seldom showing a greater degree of frost than several degrees above zero, though the ground is often frozen solid to some depth. I was assured that the plant is very hardy, had no worm or parasite, and gave little trouble in its cultivation. Having the trenches virtually idle for the first two years, since the tops of the plants do not until the third years show any luxuriance of growth, the universal custom is to plant the trenches for the first year with "ash" potatoes, described as being a potato with a very small top, since the ordinary potato vine would overshadow the staple, which, of course, is the grower's prime care. For the second year, cabbages are grown between the beds; but for the third and fourth (that is, six months) the trenches must lie fallow, as the licorice plant is then luxuriant, and presents in the summer months the appearance of a plantation of young ash trees, for instance.

The grower plants a fresh crop in the spring of each year, and in the fall of the same year harvests the one of three years and a half's growth. The only labor required beyond this is that the beds in all their stages must be kept free from weeds, and in November or December, when the sap is out of the plants, they must be cut down. If a winter proves unusually severe the tops of the plants may be protected by a light covering of earth. No irrigation is required even in the driest summer.

GATHERING AND PREPARING THE ROOT.

The mode of gathering the root is as follows, namely: The trench, not the bed, must be dug down to a great depth, thus exposing, without injuring, the roots, and the whole plant carefully taken out of the ground. The earth from the second trench is thrown into the first, and so on

The roots are placed in dry cellars, after removing the tops and suckers, the latter serving for the next spring's crop to produce "bud," that is, roots in their early stage for another year, sand being used to cover the roots. After the roots are dry they form the ordinary yellow licorice for producing the juice of commerce, except a small portion of the top of the root next the bud; this, it appears, is not so valuable as the rest, and hence is separated from the root and disposed of to be ground into powder (specimens 4 and 5), which is sold to chemists, and by them retailed for medicinal purposes, for mixing with stout and beer, and as a remedy even for horses in certain cases of sickness. That part of the plant above the ground seems to be of no value except for burning.

The three and a half years' sucker which is gathered with the licorice plant has now produced "buds," which are reserved for planting in the following spring, and the new suckers also to be planted have been propagated from the old root and are cut off from it before storing it. To preserve these "buds" through the winter they are put either into a dry cellar, and, according to McKenzie, covered over with rotten dung, or, as in Pontefract, "pied," that is, made into a mound out of doors and well covered over with earth or moist sand.

They seem in this way successfully to endure the cold, wet winters of Yorkshire.

RENT OF LAND, ETC.

Some particulars I gleaned as to rent of land, &c.: $30 per acre is the common rent for licorice land, the usual rent for cereal lands being $10 at present. One man and a boy can carry on several acres, but the work is hard during the planting season.

One informant, Mr. David Longstaff, who has been very many years in the business, stated that he considered $500 a liberal estimate to allow for "laying down" an acre from the start to yield of the first crop. He gave rent as $120 out of this, saying that the two crops of ash potatoes and cabbages hardly more than recouped the grower for his trouble, seed, &c.

CULTIVATION OF LICORICE IN THE UNITED STATES.

Mr. Longstaff spoke most hopefully of the introduction of the plant into many of our States, declaring that in Spain it grew wild in great abundance, owing to the hot climate, while he never knew it to be injured by worm, parasite, or frost.

The rainfall of Pontefract, I should say, is, of course, considerably more than that of many of our States.

Mr. Longstaff corroborated what I had heard from others, that the difficulty would be to obtain buds in sufficient numbers to furnish our would-be growers with seed. He stated that some time ago he had endeavored to obtain five hundred buds for a gentleman in London who wished to try some experiment with them, and it was only with considerable difficulty that he finally got them.

No one seemed to think there was any way of planting by seed alone, at least, from the cultivation of the plant in England.

As regards export to the States, Mr. Longstaff said that all the licorice grown in Pontefract was used in this country by chemists, &c., and that "Spanish juice" as now admitted, free of duty (it paid duty up to ten years ago), was so cheap that no English-grown licorice was now crushed and made into the material for Pontefract cakes, &c. In fact,

he thought the cultivation of the plant had decreased in the neighborhood by 100 acres since the large importation from Smyrna and Spain duty free.

Though some little jealousy may exist as to explaining the growth, &c., of the plant, I was assured by Mr. Longstaff that the process described to me, and partly witnessed, was a simple one, the great secret of the trade being the way in which the Spanish juice is boiled and then compounded for being made into cakes, &c.

MANUFACTURE OF LICORICE IN ENGLAND.

Gathering from the general request of the Department for information as to the uses of the plant that some description of the method of manufacture of the crude product into the sweetmeat may not be unwelcome. I will state what I learned from the largest manufacturer there, Mr. Hillaby. This gentleman received me very kindly, and, after some general information as to the growth of the plant in Pontefract, stated that the manufacturers depended for their supplies entirely on Spanish and Smyrna juice, samples of which, Nos. 6 and 7, I inclose. This extract inspissated from the plant either in its wild or cultivated state comes to them in large packing cases of 2 cwt. each, the cases securely dovetailed and lined with paper to avoid leakage in case of heat—the juice being really a solid plastic mass of a dark brown color, feeling like tar and inclined to run if subject to great summer heat. It may, indeed, be run into these cases (*vide* quoted account). This juice, as I gathered from Mr. Hillaby, could not be obtained from the Pontefract roots, partly owing to their small size, and partly because it paid growers better to sell to chemists, &c., who found a ready market for the roots as they were.

I judge, therefore, that our hot summers would produce equally large roots with those crushed in Spain, so that this product, if now largely imported into the United States, could be obtained in paying quantities from the home growth.

Understanding this juice to be unadulterated, I presume there is no secret in the crushing of the roots to furnish it, though I found no one who seemed ready to explain the sort of machine formerly used, and all that I can hence offer on this point is found in the quoted accounts previously given.

Explaining very courteously to me that the mixing and boiling process was a secret, Mr. Hillaby was good enough, however, to show me through his extensive premises in order that I might see the process of manufacture after the juice was properly boiled and mixed for being made into cakes. In the first room I found large masses of the "juice," now perhaps more properly called embryo Pontefract cakes, spread on heavy tables, and there rolled by women as dough is worked. This mass was then rolled out by a machine into thin sheets, laid on trays, and removed into a room at a temperature of about 100° and there left until the following morning, when it was cut out, stamped by machinery into various forms, including the well known "Pomfret cake" (sample No. 8), which holds its own, with many other novelties of design, such as letters of the alphabet, fluted sticks, &c.

The sweetmeat, as it has now become, is again subject to a high temperature to "skin over," and is then packed in card-board boxes, which are placed in wooden cases and sent off to all parts of the British Isles and the colonies.

Mr. Hillaby's manufactory is fitted up with machines entirely of his own invention for the conversion of the crude product into pomfret cakes, &c., to the perfection of which he has devoted the best years of his life, the result of which is an extensive business and an increasing demand for his special make.

Since writing the above report I have obtained the following additional information from Mr. Longstaff:

(1) The average cost of Spanish or Smyrna juice is about $11 per cwt. In consequence of the low price of foreign juice there is none now made in England.

(2) The inferior part of the root, called the "chumps," is ground into powder [*vide* sample Nos. 4 and 5]. A much finer powder is made from the finest root (decorticated), and is used for medicinal purposes. The main part of the root is sold in sticks, of which a considerable quantity is consumed by children.

(3) The average price of buds and runners is about $3 per thousand. The grower must wait until the crop is ready before the buds produced from the runners are available, being taken up with the crop.

(4) If any grower writes to me I will, as you request, do my best to procure for him a sufficient number of buds for an experiment.*

(5) The approximate cost of an acre of licorice on new ground is about $450, which I arrive at as follows:

Trenching and preparing land	$80	00
Forty thousand buds, at $2.50	100	00
Planting and manure	85	00
Four years' rent and rates (taxes)	125	00
	390	00
Four years' interest on above, say	75	00
Total	465	00
Average produce of one acre of licorice, 45 cwt., at $14	630	00

This calculation is on the assumption that this is the *first* crop of licorice, the cost of preparing the land afterward being about one-half.

The value of the buds will fully repay the cost of cleaning, taking up, &c.

The rent is calculated at $30 per acre.

C. W. WHITMAN,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Huddersfield, April 7, 1885.

LICORICE IN SPAIN.

REPORT BY CONSUL MARSTON, OF MALAGA.

I have the honor to acknowledge the receipt of Department circular under date of February 10, 1885, upon the subject of licorice, and to make the following answers to the questions contained therein, viz:

The plant grows wild. It requires wild, low, marshy ground, along the banks of rivers. The climate of Spain, say in the provinces Murcia, Aragon, and Toledo, is most suitable. It cannot be cultivated so as to increase yield.

In Spain it requires, say, on an average, eight years to reach maturity.

The plant or stalk is not utilized beyond the root.

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* Mr. Longstaff's address is "David Longstaff, esq., Monkroyd House, Pontefract, Yorkshire, England."

Exports of licorice from Malaga to United States in 1882, 1883, and 1884.

Year.	Paste.		Root.	
	Quantity.	Value.	Quantity.	Value.
	Boxes.		*Boxes.*	
1882	1,348	$32,841 15	3,365	$9,336 51
1883	1,264	30,152 46	8,285	24,371 59
1884	200	4,770 96	7,309	21,688 39
Total	2,812		18,959	

LICORICE ROOT.

There are several districts in Spain in which licorice root is obtained and large exports are made from Spanish sea-ports to the United States.

France also consumes large quantities of this root in the manufacture of licorice paste, and probably takes nearly as much as the United States.

This root is used in the United States principally for sweetening in the manufacture of plug tobacco; it is also used in the manufacture of drugs and in the preparation of medicines.

It grows wild in the lower lands, in marshy grounds, and on the banks of rivers. Probably the best quality obtained in Spain is found in the provinces of Aragon, Murcia, and Toledo. The very best Spanish licorice root is found near the margin of the Ebro, in Aragon. The next in point of quality is obtained near Cordova. Where it once takes root it is almost impossible to eradicate it. It grows in many countries, and varies in quality according to soil. Spanish licorice differs quite materially in the several provinces, the principal variations being that in some parts the bark is red, brown, and light color, the inside varying from light yellow to brown; the proportions of saccharine and starch vary also. Many kinds are fibrous, while others are almost as hard as wood. The ground is pulled at intervals of three, four, or five years, according to circumstances, by digging trenches, pulling everything visible as long as possible until it breaks.

After a year or two it shows above the ground with a little stem; in the spring over this stem there are little flowers.

From the time this stem appears until the flowers have all fallen this root is not in condition to extract, for the sap does not return to the root till then.

Each year, till the ground is culled, the quantity of roots and tops increases, until the ground is unfit for cultivation of any kind.

It is from September till March that the root is gathered, and goes through a process of drying or curing before it is considered marketable, the time required for the drying or curing process being from four to five months and requires a dry climate.

LICORICE IN THE SEVERAL COUNTRIES.

Licorice root is also found and gathered in Asiatic Turkey, Greece, Italy, in the Sicilies, &c. In the Sicilies and in Italy very little, if any, is exported as root, it being used in the manufacture of roll or stick licorice. There is a small section in England which produces a limited quantity. The United States also have licorice root in several parts of the country, but the quality is not such as to give it value

The quality of root produced in the different countries is as follows, viz: Asiatic Turkey, decidedly bitter; Greece, bitter, but not so bitter as Asiatic Turkey; Sicily, sweet, but less so than Spanish; Spain, rich and sweet; Italy, richest and sweetest of all.

EXPORTS OF SPANISH LICORICE.

Malaga has not up to the present time been considered an important shipping point for root; Seville, Alicante, Barcelona, and Bilbao are nearer the producing districts, yet during the past three years a marked increase in shipments from Malaga has taken place, as per statistics inclosed, while the shipments of licorice paste have materially decreased. The value of this root does not in Spain admit of its being increased in crop by cultivation, and the quantity gathered depends greatly upon the severity or mildness of the winter. If severe it lessens the quantity gathered.

Again, if other crops are good, labor being scarce, less root is gathered; consequently prices are higher.

MANUFACTURE OF LICORICE PASTE IN SPAIN.

There are one or two large French establishments in Spain for making paste and stick licorice, one in Seville and the other in Saragossa, besides a few small Spanish concerns also engaged in the manufacture of licorice paste.

H. C. MARSTON,
Consul.

UNITED STATES CONSULATE,
Malaga, March 9, 1885.

LICORICE IN WESTERN ANDALUSIA.

REPORT BY CONSUL OPPENHEIM, OF CADIZ.

In deference to directions given in Department dispatch dated February 10, 1885, I have the honor to forward herewith such data as I have been able to gather upon the subject of licorice production in this district.

I regret to have to say that the information is somewhat meager and not likely to be of much value in the way of practical guidance to any one wishing to introduce the licorice culture; yet it seems to be all that was obtainable in Seville, the point whence most of the root produced in this district is exported.

Here in Cadiz I could find no one at all conversant with licorice culture or production, neither could I obtain any hint as to the existence of the needed data in agricultural reports or text-books.

From a practical botanist, at present temporarily absent from this city, I expect to obtain data as to the plant's position in the Linnean system of classification, its morphology, mode of development, &c., and as soon as the information reaches me it shall be forwarded to the Department to serve as a complement to what is herewith inclosed.

The plant grows wild in this district and it is believed that it is not cultivated in any part of Spain.

A clayey alluvium produces the best quality of root, but alluvial soils

of a sandy character give the heaviest yields. The bottom lands of the great Spanish rivers, such as the Ebro, the Tagus, and the Guadalquivir, are the plant's usual habitat, and such lands are presumably more retentive of moisture than the uplands.

A warm climate and the absence of severe ground frost seem to be conditions necessary to its existence, but data as to the way the plant's growth and the annual yield are affected by the variations in the rainfall or temperature are wanting.

The plant and stalk are not utilized in this district; they are burnt or removed.

The licorice plant is here looked upon as a weed, and such a vigorous one as not to need the interference of man to protect it from the encroachment of other weeds or other noxious influences. The cropping consists in simply cutting the roots at the depth of about 1 yard; the roots are stocked in well-ventilated sheds until dry, and are then cleaned and packed into bundles for shipment.

The yield is stated to vary from 30 to 40 cwt. per aranzada (0.9284 of an acre), worth usually about 5 pesetas per cwt. The usual mode of preparing paste from the root is by crushing, boiling, and evaporating, but there are said to be other processes in use which are looked upon in the light of valuable business secrets and are jealously guarded from would-be inquirers.

The proportion of paste extracted from a given weight of root varies in subjection both to the richness of the root and to the quality of paste it is desired to produce. The dried root generally yields from 18 to 20 per cent. of its weight in paste of the best grade, and from 25 to 28 per cent. in that of ordinary quality.

The licorice root and paste exported from this district to the United States are shipped at Seville, both by steamer, via England, and, direct, by sailing vessels. The shipments (root and paste) for the last three calendar years were as follows:

1882	$21,683 91
1883	46,028 70
1884	46,840 02

ERNEST L. OPPENHEIM,
Consul.

UNITED STATES CONSULATE,
Cadiz, March 20, 1885.

CULTIVATION OF LICORICE IN SICILY.

REPORT BY CONSUL WOODCOCK, OF CATANIA.

In answer to circular of February 10, 1885, calling for information relative to the licorice plant that grows in this district, I have the honor to communicate the following:

Licorice grows to the height of 2 or 3 feet. It bears a small yellow flower. Its leaves are pinnate. The roots grow from 6 to 20 feet in length.

The valley of the river Simeto (ancient Symæthus) in this consular district is rich in vegetation. Here not only all the cereals grow t perfection under the rude culture of the rustic Sicilian husbandma but the wild plants with which the farmer has to contend spring u

In response to a question asked of a Simeto Valley farmer if the licorice plant grew upon his farm, he replied, "God forbid, for of all wild vegetation it is the most difficult to subdue."

If any particle of the root is left in the ground, it grows and sends up shoots. It is not cultivated in this district; it grows in a wild state. In the fields where it grows are cultivated not only the various grains, such as wheat, oats, barley, &c., and vegetables, but also oranges, lemons, and the various other fruits of this climate. Of course this plant is injurious to the grains and fruits, but the thorough digging of the soil for the roots of the licorice is beneficial to the production of crops.

The agriculturist here uses the most rustic of implements. His plow is that of the old Romans, consisting of an iron point which simply scratches the soil without turning a furrow. In digging for the licorice root, the soil is thoroughly turned over and is dug to the depth of from 1 to 3 feet.

There are two species of the licorice plant here. The one sends down a main root to the depth of from 3 to 6 feet with but few lateral roots; the other does not sink so deep into the earth, but creeps beneath the surface at a depth of from 6 inches to 2 feet.

The latter plant is most productive and is the most highly prized.

Doubtless if the licorice plant were cultivated it would yield larger results. The people here think its culture will not pay, hence they are satisfied to collect it as produced by nature in its wild state. There is no use made of the stem except for fuel.

The licorice plant grows most luxuriantly in the valleys adjacent to streams of water. It is, however, found among the foot-hills of the mountains, but here grows less luxuriantly. It requires a moist soil consisting of a clay loam. The climate must be warm, such as is adapted to the growth of oranges, lemons, and the other semi-tropical fruits. It cannot endure frosts, or cold, high altitudes.

The root continues to grow for four or five years, when it is considered in the best condition for gathering. The root will continue to grow for ten or twelve years longer, but it is not considered so rich in juice-yielding quality.

The crop is gathered from the same ground once in four or five years. On the average 100 pounds of the root produces 16 pounds of licorice paste. During the months of June, July, August, and September, and the first part of October the root is not disturbed, for the reason that it is then in full vegetation, and for the further more important reason that the ground is dry and hard-baked by the sun, and it is with much difficulty and great expense that it can then be dug.

As soon as the autumn rains set in in sufficient quantity to saturate the ground the root harvest commences.

During the months aforesaid the manufactories of licorice are idle, doing little or nothing in the way of manufacture. In Catania there are some seven manufactories of licorice, which employ from twenty to forty hands each, and are capable of manufacturing 750,000 pounds of the root. There is also a factory in Paterno; another in Caltegerone, and another in Terranova, in this district.

When the roots are taken from the earth they are bound in bundles, and upon the backs of mules transported from the fields to the factories. Here they lie in store for a time in a state of seasoning.

When the roots are sufficiently cured men and women, with hatchets, cut them in bits of from 3 to 6 inches in length. These are then plunged into a vat of water and thoroughly washed. They are then crushed in

The one is in horizontal position; the other, perpendicular, rests upon it. Through the center of the upper stone is an axle, to which is attached a mule, which revolves it slowly in a circle (cart-wheel like) upon the lower stone. A workman with a wooden shovel is constantly employed in keeping the roots beneath the revolving stone. When the roots are sufficiently crushed they are placed with water in kettles and boiled for twenty-four hours. They are then removed from the kettles and placed beneath a screw-press, and all the juice is thoroughly squeezed out, which runs into a cistern beneath. This juice is pumped from the cistern and passed through a sieve into kettles and the boiling resumed. The sediment from the strainer is again pressed.

The contents of the boiling kettles is a second time filtered. When boiled to the proper consistency it is removed to a broad, shallow kettle over a slow fire, where workmen with spades continue to stir it until it becomes dense enough for paste. Then it is removed and placed in wooden molds of the size they wish the cakes or by workmen worked into little rolls or sticks. When cold and hard the cakes are wrapped in paper and boxes for export.

The little rolls or sticks of licorice are placed upon shelves to dry. When they become perfectly dry and hard they are packed in laurel leaves in boxes.

In preparing the root for market, women with knives scrape off the bark and then cut it into bits of one-half inch or longer in length, as the purchaser may wish. These are then dried in the sun and placed in bags for export.

In response to my question a manufacturer answered that licorice paste may be adulterated with starch, rice flour, wheat flour, flour of the carraba (locust bean), or even wood ashes; but he expressed the opinion that the manufacturers of Catania could not be so recreant to honesty as to resort to these base methods.

The Chamber of Commerce of Catania report that in the year 1883 440,920 pounds of the root were prepared by the manufacturers and exported to the United States, in value amounting to $11,580, and that 79,126 pounds of the root were manufactured and exported to France, in value amounting to $2,079, the total export for the year being 520,080 pounds of the root manufactured, valued at $13,659.

As shown by my records for the year 1884, there were exported to New York of licorice paste 112,746 pounds, valued at $14,965.85, and of the root 14,047 pounds, valued at $567.24; the total value of the article exported for the year being $15,533.09.

ALBERT WOODCOCK,
Consul.

UNITED STATES CONSULATE,
Catania, March 12, 1885.

CULTIVATION OF LICORICE IN PORTUGAL.

REPORT BY VICE CONSUL-GENERAL WILBOR, OF LISBON.

I have had the honor to receive your circular dated February 10, 1885, propounding interrogatories in relation to the growth and cultivation of licorice.

I beg to report that licorice grows in Portugal, in a few districts spontaneously, but no use whatever is made of it. Such of the varieties

preparations of that root as are used in this Kingdom are entirely of foreign origin.

The licorice root and paste exported from Portuguese ports are originally sent hither from Spain for shipment.

J. B. WILBOR,
Vice and Deputy Consul-General.

CONSULATE-GENERAL OF THE UNITED STATES,
Lisbon, March 12, 1885.

CULTIVATION OF LICORICE IN ASIA MINOR.

REPORT BY CONSUL STEVENS, OF SMYRNA.

In acknowledgment of circular under date of February 10, 1885, calling for information concerning licorice root, how it is grown, prepared for market, &c., I have the honor to report as follows:

The root grows wild. Being indigenous, it requires no cultivation. The best root is found on the borders of streams, creeks, and rivers, where the soil is sandy but subject to overflow.

The climate must be mild, as the quality is affected by frost. The plant reaches maturity in three years; sometimes, under favorable conditions of soil and climate, in two years. Once it has taken root, it is very tenacious of life, growing spontaneously, and although the ground be dug over every two or three years it will continue to reproduce itself. The plant itself, which attains to a height of from 3 to 4 feet, is not utilized, the root alone possessing value. The root does not take a deep hold of the soil, seldom reaching below 2 feet, and is easily extracted. The best time for digging is when the sap is in the root, say during the months of October, November, and December. After being dug it is carefully dried, to prevent mold, and kept from freezing, until it is perfectly dry. It is then packed in bales of 300 pounds weight, and subjected to hydraulic pressure to reduce space and thus save freight. Great care must be observed in these processes, as the slightest moisture is hurtful, and if one bale in a cargo is injured the injury is communicated to the whole. The prepared root must be free from the slightest blemish, as other wise it is well nigh valueless. Hence no adulteration is possible.

A very large proportion of the root produced in this province finds a market in the United States, being conveyed thither in sailing vessels flying the Italian and Austrian flags, at an average freight of $4.80 per ton of 2,240 pounds. The exports of licorice root from this consular district to the United States during the twelve years were as follows:

Year.	Quantity.	Value.	Year.	Quantity.	Value.
	Cwt.			*Cwt.*	
1873	44,015	$96,831	1879	127,061	$267,939
1874	63,646	138,464	1880	214,628	445,886
1875	81,598	168,529	1881	264,177	701,781
1876	42,112	80,543	1882	193,690	471,028
1877	112,307	176,274	1883	288,458	649,057
1878	184,405	398,672	1884	269,732	618,100

The quality of the root produced in this province is superior to that found in Greece or Syria, and perhaps to that of any other country.

The very best grown is at Menemen, a place situated about 23 miles from Smyrna, in the valley of the river Hermus, and on the line of the Cassaba Railway.

In the neighborhood of Alascheir (ancient Philadelphia), the present terminus of this railway, large districts are given over to the growth of licorice. The largest yield is, however, in the neighborhood of Sakia, on the line of the Ottoman Railway, which at this place skirts the valley of the Meander. This territory is monopolized by the wealthy English firm of McAndrews & Forbes, who make heavy shipments to the United States.

The Alascheir territory is now largely controlled by an American manufacturing company, of which John H. Leeds, of New Haven, Conn., is manager. The energy and enterprise shown by Mr. Leeds in getting possession of this property are worthy of emulation by other American capitalists. He has also secured extensive licorice-producing grounds in Syria, and is no longer at the mercy of the one or two firms who formerly monopolized the product in this region.

It is now only about fifty years since the fact became known that licorice root was growing wild on the banks of the rivers which drain the fertile regions of Asia Minor. A German archæologist made the discovery. Some time after an enterprising English resident of Smyrna secured from the Turkish Government the sole right for a series of years to dig the root, which then, as now, was growing for the most part upon land owned by the Government. He realized a fortune out of the monopoly, and then sold it to the English firm before mentioned. The concession expired a number of years ago, and has not been renewed; but until the advent of Mr. Leeds, about eighteen months since, the monopoly was maintained against all efforts of individuals to break it.

I see no reason why licorice may not be produced in California, New Mexico, Texas, in fact, all the Southern States of the Union, with the exception of those in the northern tier. Whether it could be produced in competition with this region is perhaps a question, inasmuch as the labor of digging it is considerable, and labor of the kind required can be had here at one-fourth the cost of the cheapest labor in the United States.

As I have said, however, when once the plant is well rooted its eradication is difficult, so rank is its growth and so tenacious is its life, and it may be experiment would prove that its introduction would be attended with highly beneficial consequences.

The amount of the annual product in Asia Minor is certainly limited, and as the demand for it, in one form or another, by other countries is increasing rapidly, some new region must soon or late be discovered or created in order to meet this demand.

I hope to be able in a few days to gather more facts bearing upon this subject, which I shall embody in a supplementary report.

W. E. STEVENS,
Consul.

UNITED STATES CONSULATE,
Smyrna, March 27, 1885.

SYRIAN LICORICE ROOT.

REPORT BY CONSUL ROBESON, OF BEIRUT.

I have the honor to acknowledge the receipt of a circular from the Department of State dated February 10, requesting certain information about licorice root. I beg now to transmit the following answers to the questions contained in said circular:

The licorice plant grows wild.

A temperate or warm climate with a rich, deep soil are best suited to its growth.

The licorice plant is not cultivated in Syria or elsewhere to my knowledge.

Licorice root is only considered of commercial value after it has attained from three to five years' growth. As a rule, the ground is dug over every three or four years, according to the condition of the plant. In the autumn and winter the soil is removed, when the root is gathered and dried in the open air.

Beside the root, no part of the plant is considered of commercial value except in a few localities, where the stalk is used for fuel.

Much care is required in handling and watching the root during the period of drying to prevent it from molding or rotting, frequent turning being necessary. After the root is thoroughly dry, which is not before the July or August following, it is conveyed on camels or mules to some convenient point for shipment and there pressed into bales of suitable size for exportation. It is not subject to adulteration either during or after its preparation for the market. The quantity of licorice root declared at this consulate for shipment to the United States during the year 1884 was 936,980 pounds, valued at $16,125.35, but I am informed that there were shipments of licorice root from this district to the United States invoiced at the Smyrna consulate. Licorice grows in some parts of the United States, but has never been utilized, nor is it likely to be soon, as the cost of labor is so much more than in Syria, where the wages received for digging and collecting the root average from 10 to 20 cents a day; adults and children are employed. I am of the opinion that much of the southern part of the United States is well adapted for the growth of licorice root, but persons who understand the nature of the plant assert that it is impossible to get rid of it after it gets hold of the soil, and where the licorice root grows land is useless for agricultural purposes, and has to be abandoned. It is found in large quantities in the Euphrates and Tigris Valleys.

JOHN T. ROBESON,
Consul.

UNITED STATES CONSULATE,
Beirut, May 27, 1885.

SYRIAN LICORICE ROOT.

REPORT BY CONSULAR AGENT COIDAN, OF ALEXANDRETTA.

The plant grows wild, and is not cultivated. All kinds of soil suit the growth of this root, the sandy, argillous, and calcareous, as well as the dark and reddish ground; but the best suited soils are the damp ones, the places which during winter are covered with water. The best soil of all is the smooth and fertile grounds of the plains not exposed

to rigid weather, and the banks of rivers. A cold climate is not suited to its growth, and the root never grows on hills where the snow falls in winter.

It requires three years to reach maturity. The first year after the ground has been dug the root of the new plant is very thin and contains a milky vegetable matter, which, in the second year, is formed into the thick yellow matter of the licorice, but not sufficiently strong to resist the air and sun.

The plant or stalk is not utilized.

The root is not subject to any adulteration in its preparation for the market. It is dug during the end of the winter and the spring, exposed to the sun to dry, and when dry enough it is pressed by hydraulic presses in bales and shipped for export.

STEPHEN J. COIDAN,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Alexandretta, May 13, 1885.

SYRIAN LICORICE ROOT.

REPORT BY CONSULAR AGENT POCHE, OF ALEPPO.

In answer to the circular of the Department of State relative to licorice root, which you have been pleased to transmit to me, I have the honor to inform you that, from all the information I could gather in the vicinity of Aleppo about this plant, it results that it is not cultivated in any part and grows wild in a large tract of this villayet.

As to the second question, relative to the land, I must inform you that this plant prefers the plains where the soil is deep and red, although it grows as well in the other lands in the east and the west of this province, where the climate is temperate.

The reproduction of this plant is made with great rapidity by its energetic roots as well as by its seed.

The root only is utilized. As to the plant itself, it is of no use. The plant that grows in the vicinity of towns is used for the heating of ovens. The cultivation of this root in this province, for exportation, dates from twenty years ago, and was inaugurated by a French manufacturer, Mr. Vidal, who established a factory in Antioch for the preparation of the root, which, after being dug out of the ground and dried, used to be scraped, made into faggot packages of three different sizes, and exported to France and Spain, where they used it for the preparation of the drink called "coco" (licorice-water) and for pharmaceutical purposes. This enterprise, after some years of existence, failed, owing to bad management.

For a long time this commerce was abandoned, when a few years since some firms of Smyrna, who deal in this article with the United States, sent their agents to Antioch and began, in the plains which surround this city, to cultivate this root, which is exported in its wild state, either to Smyrna or direct to America. The exports have been simultaneously made at the ports of Suedieh and Alexandretta. The cultivation of this root—which is considered to be the plague of the lands where it grows, as the latter cannot be used for any other cultur and to clear the same of it would require a long, assiduous, and very

which previously used but a very small quantity of it to make the beverage known under the name of "coco." The right to root up this plant from the lands where it grows is bought from the proprietors for a certain number of years, as the reproduction, notwithstanding the uprooting of the plant, is effected very rapidly. As soon as the first rains of November fall, and the plant becomes completely dry, and the sap is reabsorbed by the roots, workmen begin with spades to pull this root out. This article, in a damp condition, is heaped up in stacks on a bed of pebbles placed on sloping ground, which allows the rain-waters during the winter to run easily down. To prevent the overheating and the molding of the root in question, these stacks, in the month of February, are turned upside down. This expensive operation is repeated at different times until the month of June, at which time, the drying being complete, the transport to the port of shipment is made on camels' backs. The firm of Alexander Sidi, of Smyrna, which has effected the most important purchases in this year, for the account of an American company, has just established at Alexandretta presses moved by steam, which will be used for the pressing of the licorice root.

The quantity which will be exported this year from the ports of Suedich and Alexandretta can be estimated at about 6,000 tons, at an approximate value of $192,000.

F. POCHE,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Aleppo, May 14, 1885.

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THE CITY OF MOBILE

AND THE CONTIGUOUS COUNTRY ABOUT

THE GULF COAST

AS A

WINTER RESORT

FOR

HEALTH AND PLEASURE OF INVALIDS AND OTHERS FROM THE NORTH AND NORTHWEST.

THE object of this pamphlet is to set forth the advantages of the City of Mobile as a health and pleasure resort in the winter and spring, for invalids and others from the North and Northwest. It is written partly at the request of some of the substantial citizens of Mobile; partly in order to give reliable information to physicians in the Northwest, many of whom have written to me for data relative to the climate, soil, winter temperature and rain-fall at Mobile; but chiefly because I have long had the desire to make known to invalids of colder latitudes the delightful and comfortable climate of our city and of the Gulf coast generally. A residence of forty years as a citizen and practitioner of medicine in Mobile gives the writer a large experience as regards the climate of the Gulf coast and the diseases for the amelioration of which it is well adapted. It is his desire to give a plain statement of facts deduced from such experience, and not to embellish

them with any fancy sketches. It is painful to read of the suffering and distress among a large class of the population of more northern latitudes, who have the means of going to a more genial climate, but who are deterred from doing so by the absence of such reliable information as would justify them in leaving their homes for several months in the year.

It has become a necessity for many thousands of persons in Missouri, Ohio, Illinois, Michigan, Wisconsin and other contiguous states to go to a more southern latitude every winter. This necessity will become greater and greater every year, and the numbers will increase, *pari passu*, with the population. These states are within forty-eight hours' travel of the Gulf coast, and if the mild climate of this coast had been widely known, there would have been in the past thousands of persons seeking winter homes on its shores. The City of Mobile and its vicinity offer a refuge for all such invalids.

Mobile is located immediately on the Bay of Mobile, a sheet of salt water, thirty-six miles in length and varying from ten to fifteen miles in width. It is in a sandy region, where the growth for a hundred miles in every direction is of pine. The soil is porous, plentifully watered with never-failing springs, and exceedingly healthy. The climate of this region is softened in winter and refreshed in summer by sea breezes from the Gulf of Mexico. No more beautiful country for the residence of man is to be found than this district. The elevation above the sea level rarely reaches more than three hundred and fifty feet, and the table-lands at this elevation are noted for their health and for the comfortable residence of invalids, both in winter and summer. At the foot of this plateau lies the City of Mobile, whose climate for a winter residence cannot be surpassed. The climate of Florida, although more noted because so much has been written about it, is not so agreeable or so wholesome as that of the Gulf coast of Alabama. The chilly eastern breeze from the Atlantic, which is so disagreeable in Florida in February and March, is here replaced by the soft wind from the tropics. If it should so happen that for a period of a week or two in winter the Gulf breeze should be too much loaded with moisture for certain invalids, they have but to retire from twenty to thirty miles from the coast, where the elevation is too great for the fogs to ascend, and where pure springs, a sandy soil and a bracing atmosphere furnish all the avenues to health that could possibly be desired. Here, also, is to be found the best of hunting; the fields

and forests being alive with partridges, wild turkeys, deer and other game.

On the eastern shore of Mobile Bay are several delightful watering-places, much frequented in summer, and serving also as winter residences for some of the inhabitants. The climate on this shore is delightful all the year round, and parties are now contemplating the building of a sanitarium for invalids in the winter as well as in the summer season. At Point Clear, a watering-place about twenty miles from the City of Mobile, there is a large and elegant hotel, filled in summer with visitors from Alabama, Mississippi and Louisiana. It is also open in winter to all who may desire to take advantage of the salt air from the Gulf. This watering-place is the finest, most healthy and most commodious in the South. The bathing-houses are within fifty yards of the hotel. In the rear and at the eastern end of the building may be found the magnolia, growing, in many instances, to an enormous size, and filling the surrounding air, in spring, with its agreeable perfume. Some orange groves, in full bearing, already exist, and others on a large scale are coming to maturity. The whole shore, for twenty miles, is studded with cottages and handsome residences, which are filled to their utmost capacity during four or five months of the year. The Gulf breeze on this side of the bay must be felt to be appreciated. The Atlantic coast has no wind that can be compared with it for health or for agreeability. Its temperature is the same whether it rises into a gale, or blows lightly enough only to ruffle the quiet waters of the bay. For this reason it is allowed to blow night and day through the cottages, where the doors and windows are left open continually to receive it.

The City of Mobile, at the head of the bay, contains about thirty-two thousand inhabitants. As a place of residence it is delightful, and is one of the healthiest cities in the Union throughout the entire year. In the past the only drawback to its prosperity and rapid growth has been the occasional appearance of yellow fever in an epidemic form. We have reason to believe, however, that there will be few if any more epidemics. The efficient sanitary police, under the direction of a well-organized board of health, has had the effect of late years to keep this disease out of the city, although it has raged at Pensacola, Pascagoula and New Orleans, adjacent cities in daily communication with Mobile.

In a social point of view, Mobile is noted for the hospitality and polish of its inhabitants. More than a century and a half ago it was a post of military importance, and has been successively under Spanish, French and English dominion. In the earlier part of the present century, when the State of Alabama and East Mississippi began to be settled by immigration, it was the natural outlet for the produce of this part of the country, and speedily became a commercial port of great importance. This drew within its borders many families of note and cultivation from Virginia and the Carolinas, who gave tone to the society, and raised it from a provincial town to a city of wealth, cultivation and refinement. It has kept up this early prestige, and few cities have a more elegant and refined population. The Roman Catholic religion, being first introduced by the French and Spanish settlers, was for a long time dominant, and is still the cherished faith of the descendants of these earlier immigrants. Mobile is the residence of the Roman Catholic bishop, and, besides various parish churches, there is a stately cathedral in a conspicuous portion of the city. The principal Protestant denominations are all in a flourishing condition, being represented by numerous handsome church edifices. The Protestant Episcopal Church of Alabama has three large parishes in Mobile, and the bishop of the diocese resides here also. There are many schools, both public and private, giving every facility for instruction. The Medical College of Alabama is also located at Mobile, and is one of the handsomest and best appointed Medical Colleges in the United States. The amusements belonging to cities of its size are all to be found, and a large and commodious theater represents the drama in its higher claims upon an enlightened community. The best dramatic talent in the country appears annually on its boards.

The rides and drives about Mobile are not surpassed in interest by those in any part of the southern states. The gardens in the suburbs are bright with flowers during the entire winter. The woods are always green, and present a striking contrast with the leafless forests of higer latitudes. Citizens from the North who leave the ice-bound lakes and rivers of their section are thus transported in less than forty-eight hours to a climate where perpetual verdure reigns, and everything bears the impress of grateful spring. The drive for six miles along the shore of the bay is noted for its beauty, passing as it does through live-oak groves and magnolia forests, but never out of sight of the broad and quiet waters of the

bay. Those who linger until April about Mobile and its vicinity will never forget the delightful odor of the magnolia and jasmine blossoms, which scent the air on the bay shore drive. In fact, during the whole month of April the atmosphere in every direction is redolent of the perfume of flowers.

In the neighborhood of the city are several creeks and bays which furnish good fishing to such as are fond of that kind of sport. Indeed, the waters about Mobile are one of its greatest attractions. During the winter there are myriads of wild ducks, the shooting of which makes good sport for the hunter, and on many fine days sailing parties can have the enjoyment of excursions, even as far down as the Gulf itself. These excursion trips often take place in the little steamers that ply to different points of the bay of Mobile, giving invalids the opportunity of enjoying the sea air in all its freshness and purity. There is hardly a week during the winter that the weather is not warm enough, for a day or two, to take these pleasant excursions to the Gulf. There are many chronic diseases that are positively benefited by the balmy air that blows from this tropical sea. It has long been known that the iodine and bromine vapors, which are floating in the atmosphere of the Gulf of Mexico, are powerful tonics to the system. Although they exist there in almost infinitessimal quantities, still they are invigorating and have a healthful effect upon the system. The fact, too, that this atmosphere is entirely free from malaria in any of its forms gives to salt air in winter the tonic properties which we find in the mountain atmosphere in summer. There is no better way to drive malaria out of the system than to go to the sea-shore and breathe its healthful atmosphere. In summer the Atlantic coast is resorted to for this purpose, and its numerous watering-places are filled to overflowing; but in winter there is no accessible point on the Atlantic to which a malarial invalid can go where the breeze is not too strong and too chilly for him to be exposed to it. On the Gulf coast this is not the case. The wind there is never cold, unless for a few hours after a northerly gale, when the cold north wind is driven back by the tropical breeze; as soon, however, as the regular sea breeze sets in, the atmosphere is balmy, healthful and delightful.

The curse of northern and western cities and towns is MALARIA. To have the blood infected with its poison is the forfeit which the luxurious citizen must pay for the sensuous gratification afforded by the high degree of civilization that reigns in opulent cities. Contamination of the atmosphere is part and parcel of dense popu

lations. No city corporation has either the wealth or the appliances to keep up a thorough system of sanitation, and the consequence is that the inhabitants must live in an infected atmosphere and suffer accordingly. Every inherited and acquired disease has, therefore, an enfeebled constitution to work upon, and the natural limit of human life is correspondingly shortened. In the latter part of summer and the early autumn malaria contains its most concentrated poison, and winter, with its rude and cutting blasts, comes on an enfeebled constitution which must give way in the battle for life. Thousands of delicate persons, who have stood the rest of the year well, now begin to complain, to lose appetite and bodily vigor, and to shut themselves up from the rough winds of the season. This close confinement serves only to make matters worse, and by December or January the early symptoms of pulmonary consumption begin to show themselves, and the family physician, powerless to do any good with medicines, advises a change of climate, where exercise in the open air can be had, and where malarial poison does not exist.

Where, then, can these unfortunates find a comfortable, agreeable and healthy region? Where can they seek a temporary residence, where they will be out of a malarial district, and still in a climate mild enough to be in the open air the greater part of the time? It is my opinion that such a climate and surroundings exist on the Gulf coast, and exist nowhere else on the American continent. I am aware that many parts of the southern country hold forth inducements to invalids from the colder latitudes, and that thousands flock to Florida every winter. But these resorts, although furnishing the requisite temperature, cannot boast of that freedom from malaria for which the coast of the Mexican Gulf is justly noted in the winter season. What is wanted by such invalids is a dry, sandy soil and a mild southern sea breeze. These requisites are found in the City of Mobile and its vicinity to a greater extent than they can be found anywhere else, either in this country or on the shores of the Mediterranean. Already a number of western people come to our city during the winter and early spring, and if the facts in the case had been widely known the Gulf coast would, for the last few winters, have been more crowded with visitors than Florida itself.

In Mobile there are no sewers to generate noxious gases. The contents of the vaults and stables are removed outside of the city limits and utilized on the suburban farms for agricultural pur-

poses. The garbage and kitchen stuff are daily taken away from the houses and deposited at points where they can impart no unwholesomeness to the air of the city.

As regards a market, where the luxuries of the table are concerned, Mobile cannot be surpassed. Fish are found in great abundance and variety. For several years past they have been shipped to the West, and have met there an extensive and increasing demand. This is destined to be in the near future a very large and lucrative business. Oysters are also to be had here in unbounded quantity, and they are superior in flavor to any found on the Atlantic coast. These two kinds of food, both so popular and wholesome, form a great attraction to Mobile, so great, indeed, that the winter population is always increased by numbers of persons who come from the interior of Alabama and Mississippi on purpose to indulge in these luxuries of the table taken fresh from the water. Game is also abundant in the winter season, consisting not only of the smaller varieties, but of wild ducks without number, as well as wild turkeys and venison of the finest character. It is not uncommon to see strawberries at Christmas and during the month of January, while green peas, cauliflower and new Irish potatoes are plentiful in March and April. Extensive farms in the neighborhood, for the raising of early vegetables for shipment to the great West, form a feature of interest and are a source of great profit. This business is rapidly on the increase, and invites settlers from more northern climates.

During the past winter and spring over four hundred thousand dollars' worth of garden vegetables, principally potatoes and cabbages, were shipped from Mobile. These little farms yield to the owners a profit of from two to four hundred dollars per acre; and some western farmers have already abandoned their homes in Ohio and Illinois to settle in the neighborhood of Mobile, where three crops can be raised during the year on lands costing only from eight to twelve dollars per acre.

We must now pass in review some of the various diseases which the experience of the past half century proves to be benefited by a winter residence at or near the Gulf coast.

First, consumption of the lungs.

I will not stop here to discuss the question whether a warm climate or a cold one is best adapted to consumptive persons. This is a matter of dispute among writers on climatology, and good authority can be adduced on both sides. One theory is, that certain

elevated table-lands, as in Colorado, for instance, have a dry atmosphere, and that the flat countries near the coast are too humid. Doubtless a dry atmosphere, all other things being equal, is best for certain consumptives whose lungs have become much involved; but, in point of fact, all other things are not equal, since these elevated table-lands are severely cold in winter, so cold, indeed, that delicate persons have to be housed the better part of the time. Hence, I take it for granted that when an invalid, say in Chicago or Milwaukee, with a bad cough and a disposition to hug the fire continually, contemplates making a change of residence for his health and comfort, his own instincts will lead him to seek a milder climate, instead of going to a colder and more disagreeable one. It is for this reason that seventy thousand people go to Florida every winter, while about one or two hundred go to Colorado, and, perhaps, twenty-five or thirty to Greenland. If cold climates and elevated regions are really the best, it remains yet to be proven; and, as we are not educated up to that point, we must expect the invalids, of this generation at least, to go in search of milder winter climates, both for health and recreation.

About forty years ago Mobile was a winter resort for consumptives from the northern states. It was thought that the mild climate would check the disease, and, in time, restore the patient to health. At any rate, it was reasonable to suppose that the disease would be mitigated, and that out-door exercise, always so important, could be indulged in much oftener than at the North. The consequence was, that many patients came annually to Mobile to pass the winter months. But at that day the fatigue of traveling was so great that numbers who would have come had to seek resorts nearer to their homes. At the time we speak of, too, there were no retreats in the neighborhood where accommodations could be had, if the occasional fogs from the Gulf should for a day or two be disagreeable to the patients. There were no railroads to transport the invalids in an hour or two to a location above the influence of the Gulf fogs. Nor was there any inhabited country to receive them, if they could have been moved off temporarily. The case is now different. In less than two hours the railroads will take us to a beautiful country, more than three hundred feet above the tide-water, well cultivated with vineyards and orchards, populated by intelligent and hospitable inhabitants, and entirely out of the reach of the lowland mists. Patients may remain in the city and enjoy the comforts, amusements and elegancies of city life

at least three weeks in every winter month. Should a short damp season come on, they can go, in an hour's notice, to the pine hills in question, and never suffer from the oppressive weather.

The little Village of Citronelle is situated in this region. The past winter a good many invalids spent the entire winter at this village, and were delighted with the dryness and purity of the atmosphere. A commodious and substantial hotel has just been erected at Citronelle, where invalids and others can get good fare and comfortable accommodations. This hotel has been built and will be conducted by a physician, whose intelligence and urbanity of manners will be appreciated by all who come in contact with him.

After spending a few days in this dry and healthy region, where the time may be occupied, if desired, in hunting and fishing, they can return to the city to meet again the sunshine and the numerous enjoyments of city life. Some consumptives prefer this region to the immediate coast, on account of the numerous turpentine distilleries scattered through it, the odor from which is considered wholesome in chronic lung diseases. If this high country north of Mobile had been opened up and inhabited thirty or forty years ago, the city and the Gulf coast would now be overrun every winter with consumptive patients from the North. Invalids, particularly consumptives, ought to spend much of their time in the winter season in or near a city. The mind has a powerful influence over the body, and while the latter requires to be invigorated by a soft atmosphere and an agreeable climate, the former must also be nourished by the psychical stimulants of amusement in its various forms and the conventionalities of elegant and refined society. Thousands of consumptives from England and Northern Europe are sent by their physicians to the cities on the Mediterranean to spend the winter. This is not altogether because of the climate, since Madeira and some of the islands in the temperate latitude are known to possess a rather better climate; but it is because in these islands there is nothing but the congenial atmosphere, while at Nice and other large cities of Southern Europe, there are associations and diversions which occupy the mind, and daily sustain and animate it with agreeable reflections.

All of the leading authorities agree that, other things being equal, consumptives ought not to be isolated, but should be in locations where the mind can be diverted as much as possible. Sir Henry Holland, whose experience reached over more than half a century in active practice, dwells particularly on this point. The

venerable Frank, the leading physician of Germany for many years, advised the same as a very important part of the treatment of consumption. Good, in his classic work on medicine, recommends cultivated society, with all its varied occupations and amusements, as all-important in prolonging the lives and adding to the comforts of chronic invalids. Indeed, these are but the dictates of common sense, and do not require any authority to support them. Every man's own experience teaches him that to have the mind diverted from bodily ailments, is a substantial benefit. Such diversion can nowhere be found, to the same extent, as in the public parks of cities, and in the suburban gardens, where a large portion of the population congregate to enjoy bands of music and other social and æsthetic amusements.

For consumptive patients, however, exercise in the open air, in a location free from malaria, is all-important. The atmosphere of a city mansion, with closed windows and doors, is a positive poison that aggravates the disease. It is far better to live in a canvas tent, if the outer air is mild enough to allow it, than to remain shut up in a house. The blood wants free oxygen, and it cannot get it in a closed apartment. Now, I claim for Mobile and its vicinity this advantage, that the patient can be out in the open air nearly every day during the winter and spring season. If this open air, therefore, is mild and not poisoned with malaria, it fulfills all the indications necessary for consumptives. The very nature of the soil at and around Mobile is opposed to the generation of malaria. The city is built on a sandy soil, and no matter how heavy a rainfall may be, it disappears in a few hours and sinks so deeply in the earth, that it is far out of reach of the sunshine or of any other cause favoring the generation of malarial poison. This same sandy soil reaches from four to six miles north and west, and then culminates into hills from two to three hundred feet high. Springhill, the nearest of the range, is six miles from the city, and is the site of many country residences. The health of this location is proverbial. During forty years I have never known a case of malarial fever to originate at Springhill. In fact, there is nothing there to produce it. The water is of the purest quality; the growth is exclusively pine, and the subsoil is white sand for one hundred feet beneath the surface. This rising ground commands a distant view of the bay of Mobile, but near enough to see vessels and steamers plying about in its waters. The Gulf breeze reaches it summer and winter, and there is no location on the continent better adapted to

the health of persons suffering with disease of the lungs. Its proximity to the city, with which it is connected by a railroad, is not the least of its advantages, when the invalid prefers to have his residence there instead of in the city itself. The water supply of Mobile comes from this elevated location, flowing from springs that have their origin in the neighboring sandy, pine woods country. As a consequence, the water consumed in the city is of the purest kind, and shows, on chemical analysis, a remarkable freedom from deleterious organic matter.

What has been said of climate, as regards consumption, will also apply to other chronic diseases of the chest. Bronchitis is a very general ailment in the North and Northwest in the winter season. It is almost impossible to cure it when the patient is daily exposed to the rude blasts of the North. No amount of warm clothing will keep the cold air from affecting the system. It must be drawn into the lungs, and there the air, at a temperature of 10 to 20° Fahr., suddenly comes in contact with a delicate inflamed membrane of the temperature of 98 to 100°. How is it possible then that the latter should not suffer? Various devices have been used to soften the air by drawing it through woolen cloth placed over the mouth, and sometimes substituting for this a network of fine wire, which being warmed by the exhaled air, would heighten the temperature of the ingoing breath. But these have little effect. All physicians know that they are poor substitutes, and that they retain the poisonous volatile animal matter of exhalation, and give it back again with the air that is inhaled. For these reasons southern climates in winter act favorably on bronchitis. Another good effect produced by residence in a southern climate during the harsher seasons, is that the mild atmosphere assists the action of remedies which are often required in chronic bronchitis. It is through the *skin* that some of the most important of these remedies act; and the more temperate the climate, within certain bounds, the more active are the cutaneous exhalations. So mild is the temperature in Mobile and on the Gulf coast in winter, that several days together are often passed without the necessity of lighting a fire. These mild spells of weather may be spent by invalids in the open air, where, in addition to the grateful sunshine, the moral effect of the rich foliage and the gay flowers of winter, insures that restorative influence which the mind always has over the body.

In this short sketch we cannot particularize all the diseases that are benefited by a residence in a southern climate during winter.

We must mention, however, the benign effect of a soft climate on chronic affections of the skin. The writer has known cases of eczema and psoriasis of forty years' standing, to be apparently cured by a continued residence of twelve months consecutively in Mobile. Persons afflicted with chronic rheumatism, or those who are subject to frequent acute attacks of this malady, will pass a much more comfortable winter on the Gulf coast than in the cold and windy regions of the Northwest. For many years past the writer has had cases of chronic rheumatism from the North under his professional care, and he can state from observation that in the great majority of cases decided amelioration took place, and the patients themselves declared that they experienced a much more comfortable existence than they had during the winter months at their homes. This, however, might be expected in a climate where the mean winter temperature is many degrees higher than it is in northern latitudes. The mild sea breeze is always favorable to rheumatic patients even on the Atlantic coast. The advantage *here* being that the sea air is always mild and invigorating. Chronic rheumatism is nothing like so frequent on the immediate Gulf coast as it is in the interior of Alabama and Mississippi, and this is thought to be owing to the bromine and iodine vapors always floating in the atmosphere of the Gulf.

Neuralgia is another complaint much benefited by the climate at and around Mobile. Cases altogether intractable at the North on account of the rigor of the weather, have been much ameliorated and indeed entirely suspended while residing in this climate. I could mention the names of two western physicians who came to Mobile last winter, with the hope that the soft climate and the sea air would benefit the neuralgia with which they both suffered. At the close of the season they reported to me very favorably, and expressed their intention to send others here during the next winter, afflicted with the same disease.

Two other physicians, one from Ohio and one from Iowa, both troubled with chronic laryngitis passed a very comfortable winter and spring in the neighborhood of Mobile, and went away delighted with their improvement, so far as the local disease was concerned.

It has been the custom for several years past, for physicians in the higher latitudes to send to Louisiana, Alabama, and Florida, patients suffering with Bright's disease and other chronic affections of the kidneys. This custom, suggested by theory, has been found to work well in practice. Any climate, not too debilitating, that

favors continued action of the perspiratory glands of the skin, must have a salutary effect in relieving congestion of the kidneys. We do not know of any case of Bright's disease that has been *cured* by being transferred to the South, but there is no doubt that the change is beneficial in winter, and makes the condition of the patient much more comfortable. This is proved by the amelioration of the disease in many cases that are annually sent to Mobile and New Orleans. Doubtless the free exercise in the open air, which cannot be enjoyed in the North, has much to do with this noted improvement.

It was the opinion of the late Prof. J. C. Nott, whose honesty of purpose and critical acumen were never doubted by those who knew him, that the Gulf coast is the healthiest portion of the United States, and is particularly adapted to the amelioration of many diseases, made worse by passing the winter and early spring in northern districts. Certainly, few men were as competent to judge in such matters as himself. A residence of forty years in Mobile, with a reputation spreading over the entire Union, brought to his notice many sufferers from the North, who sought his medical aid during their winter sojourn in the South. The eminent Dr. Warren Stone, of New Orleans, shared the same opinion. Without dwelling longer, however, on this branch of the subject, we will append some statistical tables, which may be of service to such as are curious in the matters adverted to in the foregoing sketch.

THE WINTER TEMPERATURE AT MOBILE.

An examination of the temperature tables will show that from 1869 to 1880 the extremes of temperature in December, January and February, as registered by Fahrenheit's thermometer, were from 81° to 20°. Only twice during that long period did the thermometer indicate as low as 20°, and that only in the night. In the majority of these winter seasons, the three months in question were passed with no lower temperature than 28°. It has quite often happened that during the whole month of January fires were needed only in the morning and evening, while the temperature from 10 A. M. to 5 P. M. averaged from 65° to 75°. March and April are always pleasant months. It is easily to be seen, then, how much of the time can be spent in the open air during the winter months. When we contrast this with the weary hours passed in the sickening atmosphere of a furnace-heated house, shut out from

the bright sunshine, and debarred the privilege and pleasure of looking at the green foliage which clothes the southern forests, we do not wonder that thousands of northern invalids long for a more congenial home.

I close this brief sketch by calling attention to the following statistical tables of the temperature, rain-fall, etc., at Mobile, for the months of December, January, February and March, taken from the report of the United States Signal Office at this station in 1880 and 1881. The winter of 1880 was the coldest experienced in Mobile for sixty years, and yet a reference to the tables will show that the temperature was mild enough every day, except two, to be out in the open air, and that there was a large majority of the days in every month clear and fair. There were a few cloudy days, but it will be seen that during the whole period of one hundred and twenty days there was very little rain that fell in the day-time. I will note in passing, however, that the very heaviest rains in and about Mobile disappear almost as rapidly as they fall, owing to the deep, sandy soil of this locality. The rain-fall, therefore, is hardly to be considered as a factor in the production of humidity, so far as this occurs from emanations from the soil.

Meteorological Observations taken at Signal Office in Mobile, Ala., during January, February and March, 1880.

Days.	Thermometer.	State of Weather.	Days.	Thermometer.	State of Weather.	Days.	Thermometer.	State of Weather.
	2 P. M.	2 P. M.		2 P. M.	2 P. M.		2 P. M.	2 P. M.
Jan'y 1.....	73	Fair.	Feb'y 1.....	54	Cloudy.	March 1	61	Cloudy.
" 2.....	72	Fair.	" 2.....	58	Clear.	" 2.....	70	Cloudy.
" 3.....	70	Fair.	" 3.....	52	Clear.	" 3.....	74	Fair.
" 4.....	74	Cloudy.	" 4.....	51	Fair.	" 4.....	74.5	Fair.
" 5.. ...	73	Cloudy.	" 5.....	45	Cloudy.	" 5.....	81.5	Fair.
" 6.....	72	Fair.	" 6.. ...	53	Fair.	" 6.....	77	Clear.
" 7.....	68	Fair.	" 7	59	Fair.	" 7.....	77	Fair.
" 8.....	66.5	Fair.	" 8.....	62	Cloudy.	" 8	78	Cloudy.
" 9.....	66	Cloudy.	" 9.....	63	Cloudy.	" 9.....	71.5	Fair.
" 10.....	65	Foggy.	" 10.....	70	Clear.	" 10.....	60	Light rain.
" 11.. ...	78	Fair.	" 11.....	70	Cloudy.	" 11.....	76	Fair.
" 12.....	69.5	Cloudy.	" 12.....	70	Fair.	" 12.....	76	Cloudy.
" 13.....	56	Clear.	" 13.....	62	Cloudy.	" 13.....	74	Cloudy.
" 14.....	63	Fair.	" 14.....	60	Clear.	" 14.....	63	Light rain.
" 15.. ...	66	Cloudy.	" 15	58	Clear.	" 15.....	76	Cloudy.
" 16.....	68	Fair.	" 16... ..	63	Clear.	" 16.....	55	Fair.
" 17.....	68	Fair.	" 17.....	66	Fair.	" 17.....	54	Fair.
" 18.....	68	Clear.	" 18.....	78	Fair.	" 18.....	67	Cloudy.
" 19.....	68	Clear.	" 19.....	55	Fair.	" 19.....	66	Cloudy.
" 20.....	69	Cloudy.	" 20.....	54	Clear.	" 20.....	70	Fair.
" 21.....	61	Light rain.	" 21.....	57	Light rain.	" 21.....	62	Light rain.
" 22.....	62	Fair.	" 22.....	57	Clear.	" 22.....	59	Cloudy.
" 23.....	48.5	Cloudy.	" 23.....	75	Clear.	" 23.....	71	Fair.
" 24... ..	56	Clear.	" 24.....	71	Clear.	" 24... ..	74	Cloudy.
" 25.....	49	Cloudy.	" 25.....	70.5	Fair.	" 25.....	72	Clear.
" 26.....	55.5	Fair.	" 26.....	74	Fair.	" 26.....	75	Fair.
" 27.....	63	Clear.	" 27.....	75	Fair.	" 27.....	76.5	Threatening.
" 28.....	69.5	Fair.	" 28.....	76	Fair.	" 28.....	73	Clear.
" 29.....	70	Fair.	" 29.....	73	Cloudy.	" 29.....	65.5	Clear.
" 30.....	73	Fair.	....	.....	.....	" 30.....	69	Fair.
" 31.....	70	Cloudy.	.....	.....	.....	" 31.....	72	Hazy.

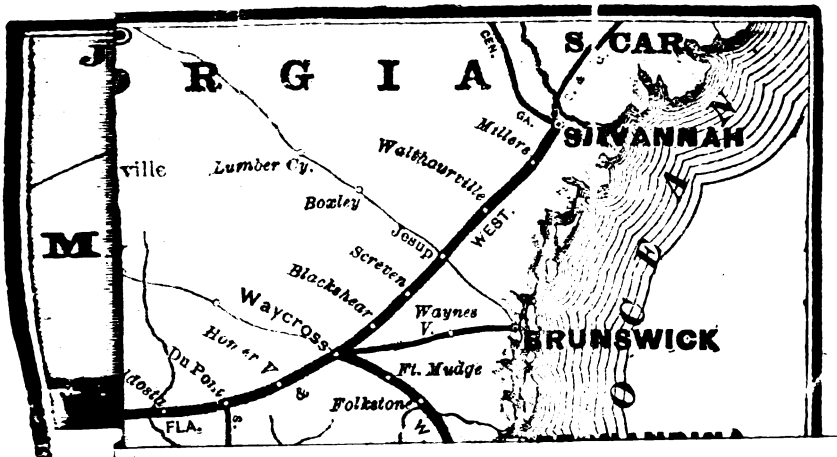
Meteorological Observations taken at the Signal Office in Mobile, Ala., during the following years and months:

1880.			1881.			1881.			1881.		
Days.	Therm'ter	State of Weather.	Days.	Therm'ter	State of Weather.	Days.	Therm'ter	State of Weather.	Days.	Therm'ter	State of Weather.
	2 P. M.	2 P. M.		2 P. M.	2 P. M.		2 P. M.	2 P. M.		2 P. M.	2:16 P. M.
Dec. 1....	75	Fair.	Jan. 1....	41	Clear.	Feb. 1....	71	Cloudy.	Mar. 1....	64	Clear.
" 2....	67	Cloudy.	" 2 ...	47	Clear.	" 2....	49	Fair.	" 2....	71	Clear.
" 3....	62	Light rain.	" 3....	40	Cloudy.	" 3....	57	Fair.	" 3....	64	Clear.
" 4....	70	Fair.	" 4....	56	Light rain.	" 4....	62	Fair.	" 4....	64	Hazy.
" 5....	77	Cloudy.	" 5....	50	Cloudy.	" 5...	56	Fair.	" 5....	56	Clear.
" 6....	59	Clear.	" 6....	52	Fair.	" 6....	57	Cloudy.	" 6....	59	Hazy.
" 7....	52	Clear.	" 7...	49	Fair.	" 7....	56	Cloudy.	" 7....	49	Light rain.
" 8....	57	Clear.	" 8....	57	Fair.	" 8....	62	Cloudy.	" 8....	58	Fair.
" 9....	54	Clear.	" 9....	52	Cloudy.	" 9....	67	Fair.	" 9....	61	Fair.
" 10....	48	Clear.	" 10...	40	Cloudy.	" 10....	65	Fair.	" 10....	63	Clear.
" 11....	53	Clear.	" 11....	43	Fair.	" 11...	64	Cloudy.	" 11....	65	Cloudy.
" 12....	58	Fair.	" 12....	49	Clear.	" 12....	48	Clear.	" 12....	73	Fair.
" 13 ...	61	Clear.	" 13....	60	Fair.	" 13....	43	Clear.	" 13....	69	Cloudy.
" 14....	69	Cloudy.	" 14....	44	Cloudy.	" 14....	46	Clear.	" 14....	70	Cloudy.
" 15....	67	Fair.	" 15....	57	Cloudy.	" 15....	56	Fair.	" 15...	63	Light rain.
" 16....	69	Fair.	" 16....	65	Fair.	" 16....	64	Hazy.	" 16....	70	Cloudy.
" 17....	66	Fair.	" 17....	72	Fair.	" 17....	65	Hazy.	" 17....	68	Light rain.
" 18....	67	Fair.	" 18....	67	Light rain.	" 18....	67	Fair.	" 18....	69	Cloudy.
" 19....	53	Light rain.	" 19....	65	Light rain.	" 19....	65	Fair.	" 19....	64	Clear.
" 20....	37	Cloudy.	" 20....	60	Fair.	" 20....	55	Cloudy.	" 20....	59	Clear.
" 21....	42	Clear.	" 21....	46	Cloudy.	" 21....	57	Clear.	" 21....	65	Fair.
" 22....	45	Fair.	" 22....	48	Fair.	" 22....	60	Clear.	" 22....	52	Clear.
" 23....	50	Cloudy.	" 23....	39	Cloudy.	" 23....	65	Hazy.	" 23....	57	Clear.
" 24....	59	Fair.	" 24....	38	Fair.	" 24....	57	Clear.	" 24....	65	Clear.
" 25....	51	Cloudy.	" 25 ...	44	Clear.	" 25...	67	Fair.	" 25....	66	Fair.
" 26....	41	Cloudy.	" 26....	50	Fair.	" 26....	65	Cloudy.	" 26....	61	Clear.
" 27....	46	Hazy.	" 27....	50	Fair.	" 27....	67	Clear.	" 27....	62	Clear.
" 28....	48	Fair.	" 28 ...	46	Cloudy.	" 28....	59	Clear.	" 28....	65	Hazy.
" 29....	21	Fair.	" 29....	57	Fair.	.....	.....	.....	" 29....	63	Cloudy.
" 30....	25	Fair.	" 30....	64	Fair.	.....	.....	.....	" 30....	59	Fair.
" 31....	32	Clear.	" 31....	63	Cloudy.	.....	.....	.....	" 31....	62	Clear.
			Lowest Temperature during month, 28.0.			Lowest Temperature during month, 30.0.			Lowest Temperature during month, 38.0.		

STATISTICAL TABLE.

Meteorological Observations taken at the Signal Office in Mobile, Ala., during the following years and months:

1881.			1882.			1882.			1882.		
Days.	Therm'ter 2:16 P.M.	State of Weather. 2:16 P. M.	Days.	Therm'ter 2:16 P.M.	State of Weather. 2:16 P. M.	Days.	Therm'ter 2:16 P.M.	State of Weather. 2:16 P. M.	Days.	Therm'ter 2:16 P.M.	State of Weather. 2:16 P. M.
Dec. 1....	72	Clear.	Jan. 1....	46	Fair.	Feb. 1....	51	Clear.	Mar. 1....	72	Clear.
" 2....	73	Cloudy.	" 2....	48	Clear.	" 2....	57	Hv'y rain.	" 2....	71	Clear.
" 3....	73	Clear.	" 3....	59	Cloudy.	" 3....	58	Light rain.	" 3...	71	Clear.
" 4....	73	Fair.	" 4....	64	Cloudy.	" 4....	58	Clear.	" 4....	73	Clear.
" 5....	61	Clear.	" 5....	69	Fair.	" 5....	56	Clear.	" 5....	74	Clear.
" 6....	67	Fair.	" 6....	67	Threat'n'g.	" 6....	62	Clear.	" 6....	76	Cloudy.
" 7 .	69	Clear.	" 7....	67	Light rain.	" 7....	69	Cloudy.	" 7 ...	68	Light rain.
" 8....	59	Light rain.	" 8....	66	Foggy.	" 8....	67	H'vy rain.	" 8....	76	Fair.
" 9....	60	Light rain.	" 9....	70	Cloudy.	" 9....	65	Clear.	" 9...	67	Light rain.
" 10....	64	Clear.	" 10....	70	Fair.	" 10....	69	Clear.	" 10....	67	Fair.
" 11....	66	Cloudy.	" 11....	63	Cloudy.	" 11....	69	Cloudy.	" 11....	69	Clear.
" 12....	66	Cloudy.	" 12....	71	Cloudy.	" 12....	70	Cloudy.	" 12....	76	Threat'n'g
" 13....	69	Light rain.	" 13....	77	Fair.	" 13....	69	Cloudy.	" 13....	71	Clear.
" 14 ...	67	Cloudy.	" 14....	68	Cloudy.	" 14....	71	Cloudy.	" 14....	67	Clear.
" 15....	67	Clear.	" 15....	72	Cloudy.	" 15....	70	Fair.	" 15....	75	Cloudy.
" 16....	54	Clear.	" 16....	70	Fair.	" 16....	73	Cloudy.	" 16....	67	Cloudy
" 17....	60	Clear.	" 17....	49	Light rain.	" 17....	74	Fair.	" 17....	74	Fair.
" 18....	62	Cloudy.	" 18....	68	Cloudy.	" 18....	75	Fair.	" 18...	77	Fair.
" 19....	66	Light rain.	" 19....	52	Cloudy.	" 19....	73	Cloudy.	" 19....	77	Clear.
" 20....	65	H'v'y rain.	" 20....	64	Cloudy.	" 20....	74	Threat'n'g.	" 20....	81	Fair.
" 21....	67	Light rain.	" 21....	66	Light rain.	" 21....	65	Fair.	" 21....	59	Light rain.
" 22....	58	Clear.	" 22....	54	Clear.	" 22....	57	Clear.	" 22....	65	Cloudy.
" 23....	53	Clear.	" 23....	53	Fair.	" 23....	60	Clear.	" 23....	66	Cloudy.
" 24....	52	Cloudy.	" 24 ...	53	Light rain.	" 24....	60	Clear.	" 24....	71	Cloudy.
" 25....	54	Light rain.	" 25....	61	H'vy rain.	" 25....	56	Cloudy.	" 25....	71	Hazy.
" 26....	57	Cloudy.	" 26....	71	Fair.	" 26....	54	Light rain.	" 26....	66	H'vy rain.
" 27....	58	Clear.	" 27 ...	71	Fair.	" 27....	71	Cloudy.	" 27....	76	Cloudy.
" 28....	63	Light rain.	" 28....	77	Fair.	" 28....	67	Cloudy.	" 28....	67	Cloudy.
" 29....	59	Clear.	" 29....	52	Cloudy.	.....	.....	.....	" 29....	70	Clear.
" 30....	55	Clear.	" 30....	50	Light rain.	.....	.....	.....	" 30....	77	Clear.
" 31....	54	Clear.	" 31....	46	Cloudy.	.....	.....	.....	" 31....	81	Clear.
Lowest Temperature during month, 36.8.			Lowest Temperature during month, 32.			Lowest Temperature during month, 35.			Lowest Temperature during month, 46.5.		



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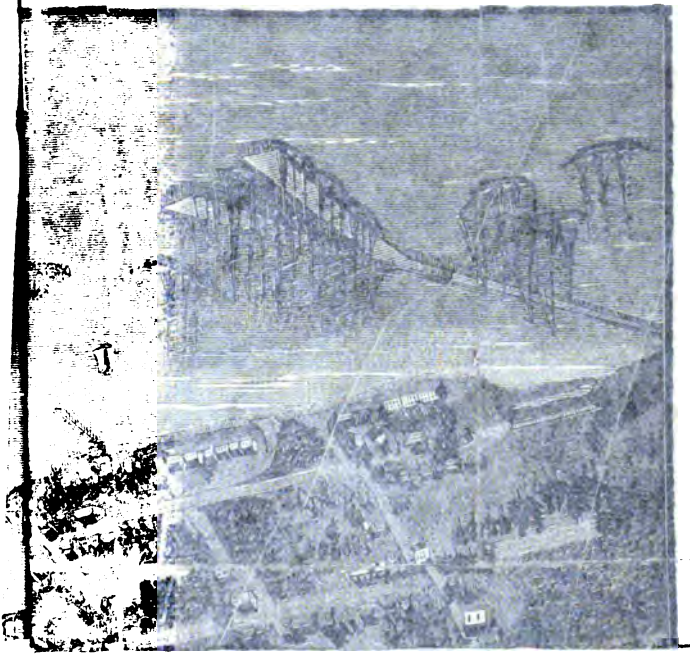

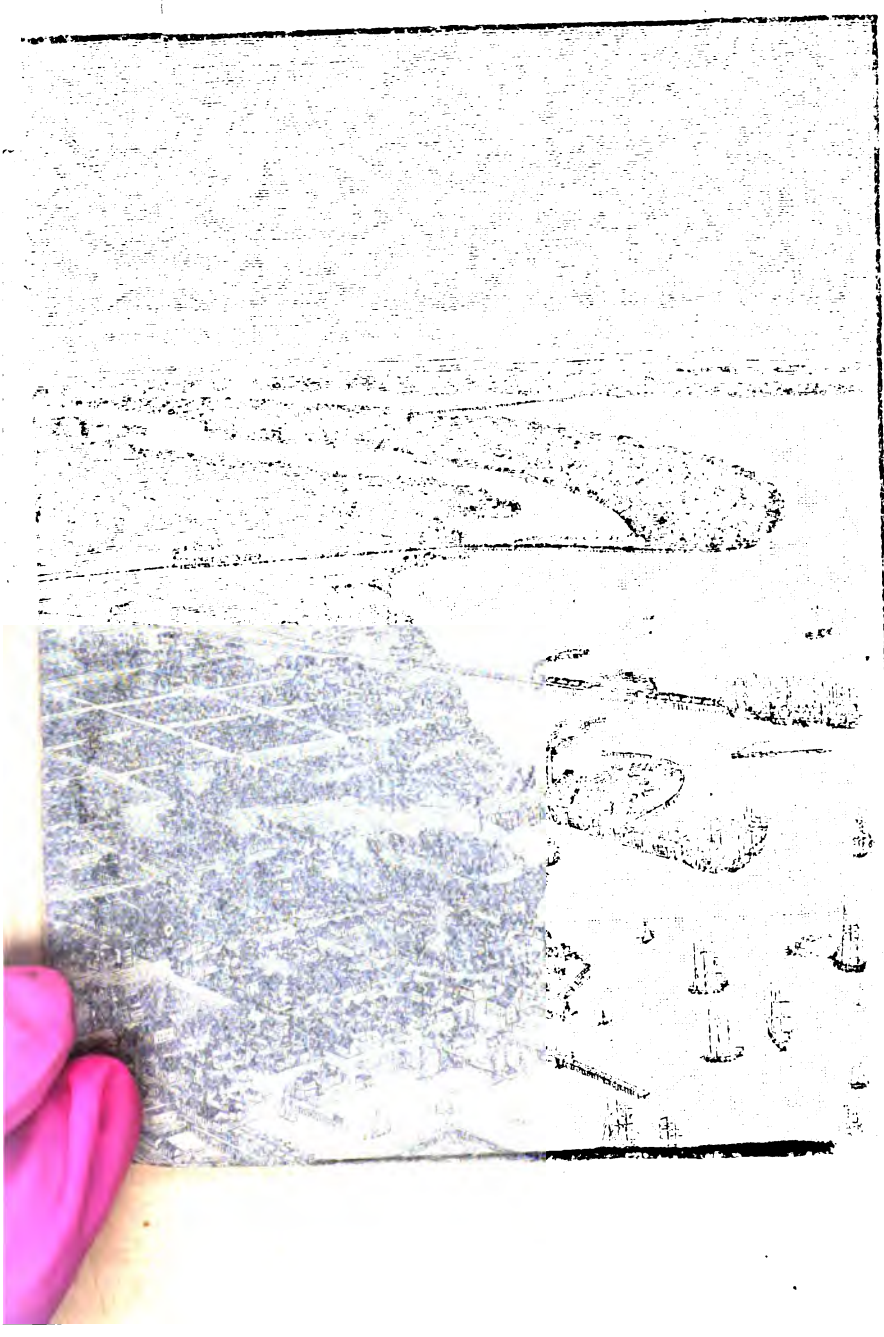

7

FACTS ABOUT

FLORIDA

AIN TRUTHS OVER RELIABLE SIGNATURES.

rigin of the Name FLORIDA.—English Claim (published MDCCLXIII) to the Discovery of this Continent.—A voice of a Century ago, giving the first known Testimonials in regard to Florida as a Health Resort.—First suggestions of a Ship Canal made in 1763.—First mention on record of Pensacola scenery and its Timber Trade.

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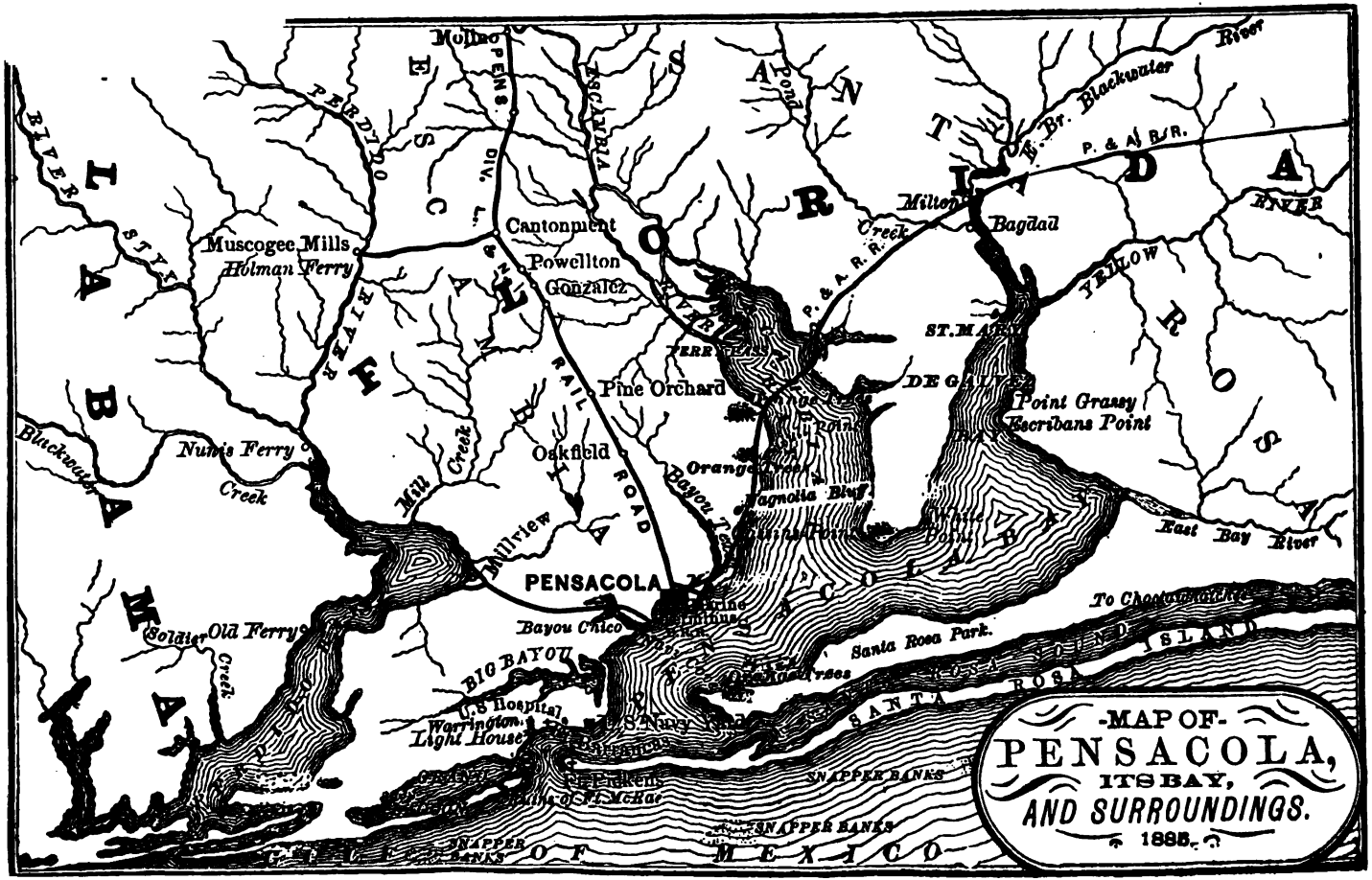
-MAP OF-
PENSACOLA,
ITS BAY,
AND SURROUNDINGS.
1885.
PENSACOLA
Bayou Chico
Old Ferry
Soldier Creek
Nunis Ferry
Blackwater Creek
Muscogee Mills
Holman Ferry
Cantonment
Powellton
Gonzalez
Pine Orchard
Oakfield
Millview
Mill Creek
Milton
Bagdad
Point Grassy
Escribans Point
East Bay River
Santa Rosa Park.
Warrington
Light House
U.S Hospital
SNAPPER BANKS
SANTA ROSA ISLAND
GULF OF MEXICO
LABAMA
FLORIDA
SANTA ROSA
ESCAMBIA
PERDIDO RIVER
ESCAMBIA RIVER
YELLOW RIVER
E. Br. Blackwater River
P. & A. R.R.
Pond Creek
Orange Trees
Magnolia Bluff
Bayou Texas
Mollino
PENS. DIV. L. & N. RAIL ROAD
BIG BAYOU
Ft. Pickens
Ft. McRae
Ft. Barrancas
U.S. Navy Yard
Marine Terminus
White Point
Orange Trees

AND SURROUNDINGS.

WESTERN FLORIDA:

ITS

Climate, Soil and Capabilities Agriculturally Considered,

BY

JUDGE J. G. KNAPP,

U. S. STATE STATISTICAL AGENT FOR FLORIDA.

FLORIDA differs from all other regions in climate, soil and productions. Its climate may be felt; its soil seen and examined; its climate and soils cause its productions, which may be handled, sold and enjoyed. These combined make Florida what we find it, the most desirable of all regions for its pure air, its genial and equable temperature, its ocean-tempered breezes, its balsamic atmosphere invigorating body and mind.

As Florida differs from all other countries and states, so, too, it differs from itself in regions and parallels, as if to supply the desires of all choosing to locate within its borders. In Florida may be found locations suited to the tastes and desires of every would-be resident, and every production the agriculturists may desire to grow.

To speak of all these would occupy too much of the reader's time; and this paper will be confined to that portion of the State lying between the Suwanee and Perdido rivers—a region possessed of a climate and soil, vegetations and capabilities differing from yet equaling those of any other region, when cultivated with crops adapted to its conditions.

THE SOIL.

The character of all soils, whether productive or barren, depends in a great measure upon the geological formation from which they are derived. This region has its rocky foundation upon the eocene or oldest stratum of the tertiary formations. That was the period when the marine animals built up rocks of lime, silica and phosphorus. To-day those rocks crop out in the sides of the ridges, along the banks of the streams, and in a few places on the level surface. Sometimes as hard rocks, sometimes advancing towards hardness, yet soft enough to be cut with a saw or hewn with an axe; and again they appear as a soft marl. In some places they appear in small detached and irregular blocks, known in common parlance as "rotten lime stone" beds. As those rock strata approached the surface of that

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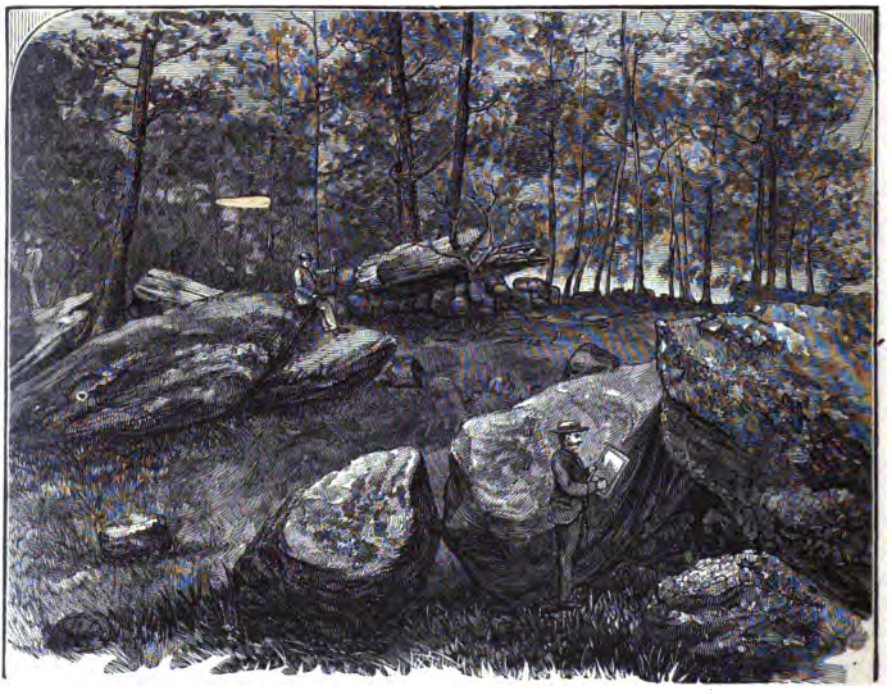
ancient sea the waves and ocean currents ground and pulverized the hard rocks and disintegrated the marls; at the same time the streams of fresh water, swelled by freshets unknown in these days, bore gravels, sands, clays and alluvial muds from the Appaladian chains, at the north, geographically higher, yet geologically lower and older. These buried the eocene rocks, and gave to the surface magnesia and alumina, potash, iron and sulphates. The retiring ocean left abundance of soda behind, and the salt atmosphere keeps up the supply. Thus, we now find the whole region covered with a stratum containing all the mineral elements needed for plant food; algeæ and sea weeds, liverworts and mosses, grasses and ligneous plants, in genera, families, orders and species, in rapid succession, covered the wet and dry lands. Each and all, singly and in myriads laid their leaves, stems and huge trunks upon the surface, and left their roots where they had grown beneath.



SCENE NEAR CHIPLEY, ON P. & A. R.R., FLORIDA.

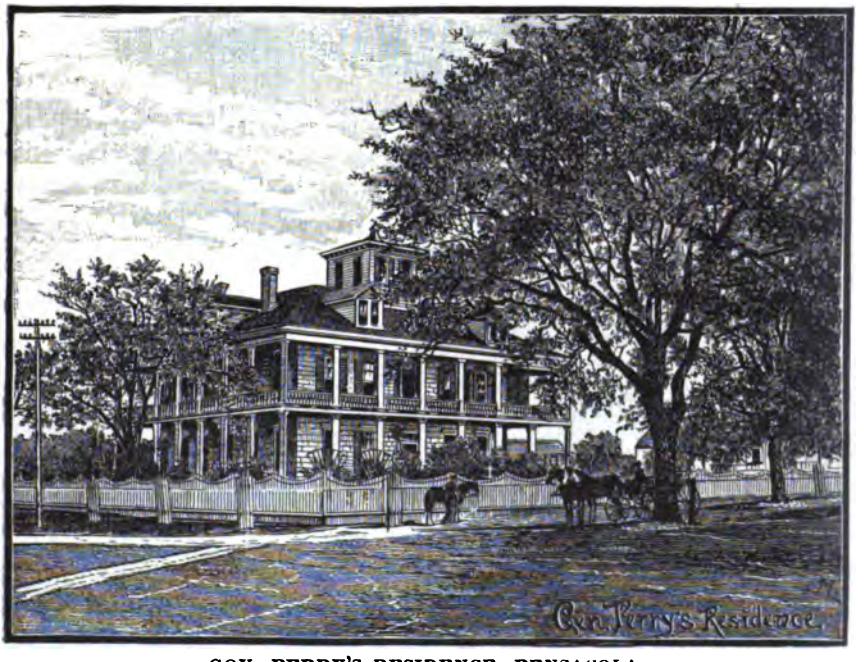
All decayed under the heat of the sun, and the moisture of the rains and dews, filling the surface with humus to draw nitrogen from that inexhaustable source, the atmosphere, and furnishing food to other plants.

Except, perhaps, for the acts of man in firing the woods, since an epoch prior to history, or even human memory, this region and all of Florida would ·-y have been covered with a growth of trees and vegetations denser than

IDA CHAUTAUQUA commences its second annual Assembly at De Funiak Springs, February 23, 1886. ·ogramme, address C. C. BANFILL, Secretary, De Funiak Springs, a.

any now known ; and possessed of a soil better filled with humic acids than are the densest woodlands or grass-covered prairies of the Northern States, and had a blacker, richer soil. The present barrenness may be attributed to such burning, continued by the present inhabitants. Fire consumes all of the organic matter that can make humus, leaving only the very small amount of minerals generally in a condition soluble in the rains, and liable to be carried beneath the reach of the roots of living plants. Burning is more destructive of fertility of soil than is plowing and reaping crops. Fertility is given to soil by filling it with humus.

Passing over the line of the Pensacola & Atlantic Railroad, all will be struck with the apparent barrenness of very much of the land. To all, and



GOV. PERRY'S RESIDENCE, PENSACOLA.

especially to the uneducated eye, there is too much sand for a high degree of productiveness. To most it exhibits a state near barrenness, and will be so pronounced. To the educated agriculturist it shows a high degree of surface drainage and areation in the soil, two important points in economical agriculture, in the growth of all valuable plants. Into such a soil the deep penetrating roots of such trees as the hickory, the oak and the pines, and of such herbs as the clover, beggar weed, and many of the grasses and other plants can easily send their roots, and secure those minerals soluble in water, yet needed as plant food, though liable to sink into the ground, where

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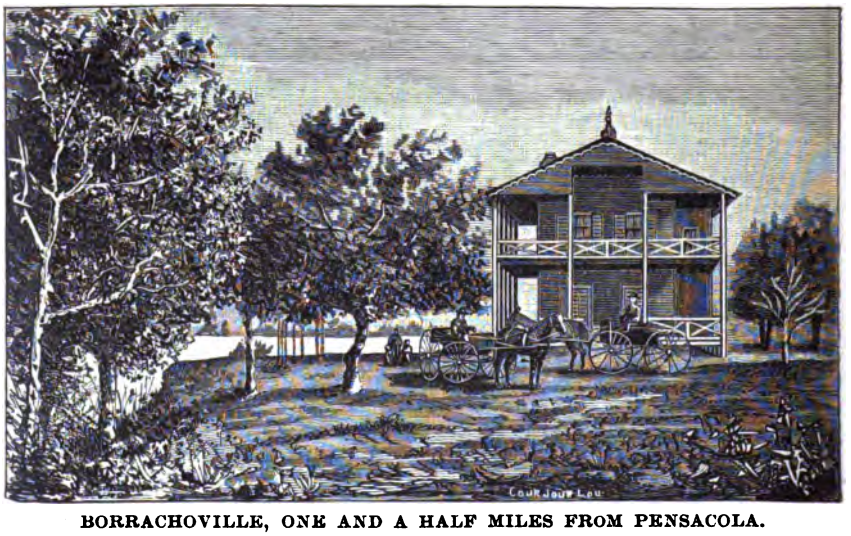
the roots find and bring them again to the surface, not only for their own use, but for the use of other more shallow-rooted plants. The uneducated sees only a soil of sand, while the educated may see many grains of sand and pebbles, coated with lime, often phosphates; other pebbles are composed of lime, or lime and magnesia and lime phosphates, pebbles of low grades of oxyds of iron; and again, in more minute particles are finely comminuted shells and limestones, alumina and magnesia, thus making a soil deficient in nothing except decomposing vegetable matter and humic acids. These are easily supplied from the stable and the compost pile, and by burying in the soil such vegetations as it will produce when cleared of the roots and trees that shall hinder the plow, aided by a few dollars worth of sulphate of potash applied to the surface. THESE LANDS ARE NOT ALL SAND AND BARREN. Judicious cultivation will soon, and cheaply, make them rich and productive.

SURFACE.

Commencing at the Appalachicola River, where it has cut its channel nearly to sea level, and made a navigable stream for many miles, the land rises to a ridge or table-land extending to the Blackwater and Escambia Bay,



BORRACHOVILLE, ONE AND A HALF MILES FROM PENSACOLA.

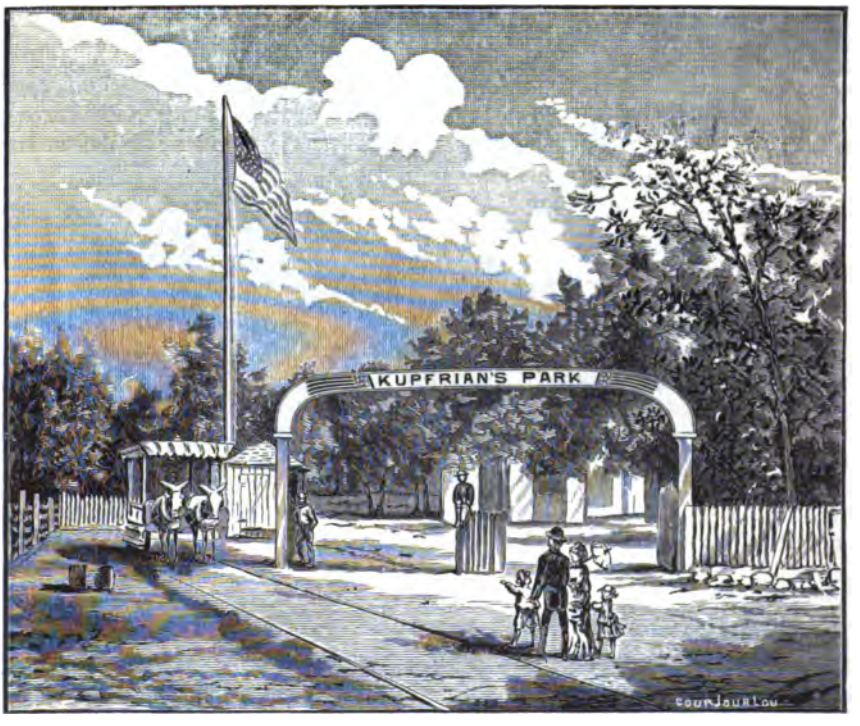
cut at several points by other rivers. The highest point reached is 300 feet. Along the sides and the channels of the streams the rocks and marls crop out, and the different strata may be traced. The Chipola finds for three miles an underground channel, and other streams cut channels through this ridge, the most southern outlier of the Alabama Mountains. It is from two to five miles in width, along the summits of which the railroad is laid. Along its northern side lies a belt of lower lands, in which meander small spring brooks. On the south the land gradually flattens down to a few

'THERN FORESTRY CONGRESS convenes at De Funiak Springs, Fla., December 16th, 1885. For details, ess C. C. RANFILL, Secretary, De Funiak Springs, Florida.

feet above sea level, through which the rivers and creeks wind, frequently interlocking, forming islands and wet lands covered with cypress, red cedars, rich hammocks of oaks, hickories and other hard woods, with ridges of lands covered with pines, and far richer soil than on the ridges.

CLIMATE.

This region lies south of the great Appalachian chain of mountains, which north of here has trended from their general course, north-east and south-west, to the west, and as completely obstructed the course of the northern wind currents of winter, as do the Pyrenees the plains of Spain, or the Alps and Appanines the olive and orange orchards of Italy. The winter climate



PLEASURE GARDEN, PENSACOLA.

is warmer than is found on the same parallel farther west. During the cold winter of 1883–4, at Pensacola, on the 6th of January, at three o'clock A. M., the self-registering thermometer marked 16 F., but at seven o'clock the cold had moderated, and before noon the mercury had risen into the 40's. On July the 20th, 1884, the highest temperature was 97 F., a temperature seldom reached, and the average for the year was only 67.8 F. The whole region

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lies south of the thirty-first parallel, and in the northern belt of the northeast trade winds of the Atlantic. This climate shows that the fig, which can endure a cold of three days of zero, and the olive, that is only killed when a cold of 12 F. remains for a like period, can be cultivated in this region. Indeed, so mild are the winters here that near the gulf coast are growing some of the oldest orange trees in Florida, which yearly perfect their crops of fruit. If the winters are warm, the summer heats are never oppressive, but are tempered by the breezes passing between the mountains and gulf, and by the northernmost trade winds of the Atlantic. The farmers of Jackson County report but once in a period of thirty years has there been sufficient cold to kill the oats sown in November. Frosts are less severe here in January than in Ohio in November or April. In fact, no

BLUFFS ON ESCAMBIA BAY, NEAR PENSACOLA, ON P. & A. RAILROAD.

winter has been known, since the first settlement of this region, nor even a week experienced, in which the winter rye and perennial grasses did not grow, or cattle and sheep could not find sustenance from pastures of Bermuda grass.

FERTILIZING AND PREPARING THESE LANDS FOR CULTIVATION.

For the best and most economical cultivation of these lands all stumps and roots that may interfere with the plow, harrow, mower, horserake, or other farming implements, should be removed from the ground to the depth of at least a foot. This will apply as well to the damp land as to the dry.

The most sandy, barren and ill favored of all these lands are found on the highest ridges. They are the dry lands where small pines and oaks grow stuntedly, and are evidently destitute of the very important mineral ingredients of potash, phosphorus, lime and sulphur, as is shown by the starved condition of the trees and other vegetable growths. To fertilize these lands and bring them to a productive state the land being cleared must be plowed,

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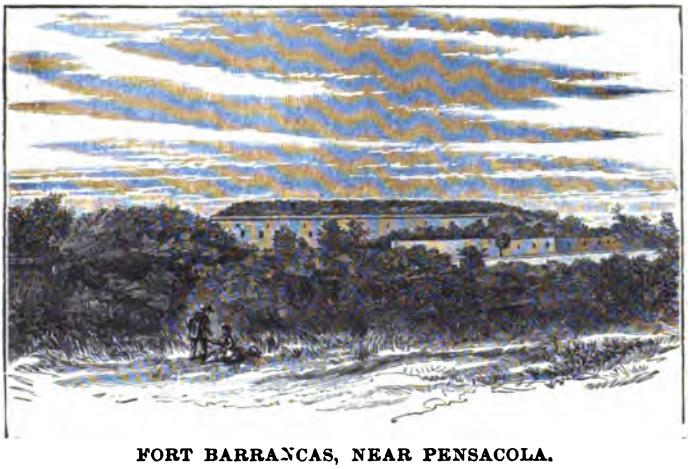
Read page 63.

completely reversing the soil to the depth of six inches. Within three weeks the land should be harrowed to smoothe the surface and tear out all roots broken by the plow. Then sow broadcast 100 or 150 pounds of chloride (muriate) of potash to the acre, or 150 or 200 pounds of kainet will answer the same purpose. Plow the land an inch deeper than at first. Harrow and broadcast 200 pounds of finely ground bone dust to the acre; plow again, bringing the potash salts to the surface. This plowing, harrowing, rains and dews will have mixed the potash quite thoroughly throughout the soil plowed, and the bone meal, not very soluble, is now at the bottom. Harrow and give a third plowing, to again mix the potash and phosphate of lime, turning up another inch and increasing the depth to eight inches, into which the roots of plants may freely penetrate. Follow this plowing with two bushels of oats on each acre, and harrow thoroughly. As soon as the grain appears sow over it 200 pounds of land plasture, sulphate of lime or gypsum. This last is applied for the purpose of attracting nitrogen from the inexhaustible source, the atmosphere, and holding it for the food of the oats, because



FORT BARRANCAS, NEAR PENSACOLA.

this soil is nearly destitute of humus. There has now been supplied $6.25 worth of salts of potash, $3.00 worth of phosphate of lime and $4.00 worth of sulphate of lime, making a total of $13.25 for each acre of commercial fertilizers; and there has been added to the soil potash, phosphorus and lime, as well as sulphur, to attract and hold the needed nitrogen, giving all the plant food required for most plants, certainly enough for the oat straw and leaves to flourish vigorously, if not to perfect the grain, notwithstanding there be a deficiency of humus in the soil. If the grain or fodder be not desired, then from two to four tons of leaves, stems and roots, composed mostly of carbon and nitrogen derived from the atmosphere, may be placed in the soil by turning the oats in by the plow, to decompose and ferment in the soil. None of the minerals applied have been lost, or sunk beneath the reach of the roots of the next crop.

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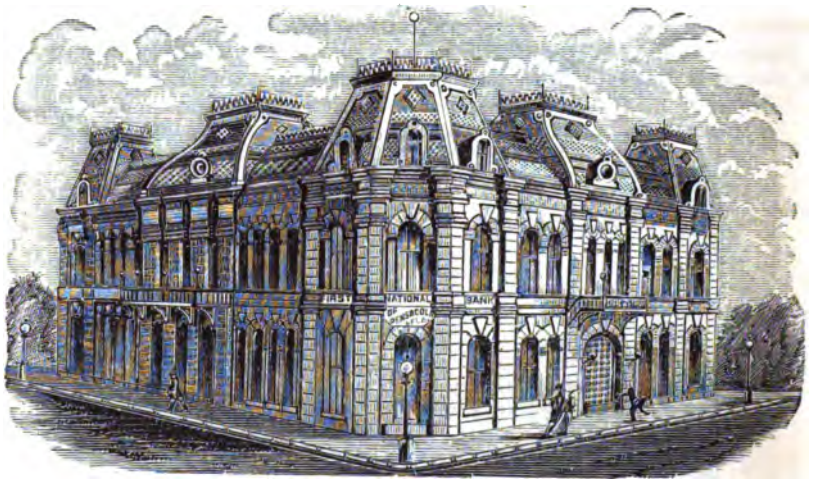
The soil will no longer present its white and barren character; but will show a dark, rich color, and be ready to produce any crop the farmer shall choose to plant; and having taken but six months to accomplish it. But had the same land been covered with a coating of an inch and a-half of muck composted with lime in the first instance, it would have been equally rich as at the time of sowing the oats. Muck is found in abundance conveniently near.

These lands, in their wild state, can be cheaply purchased; and if to the purchase money, and cost of labor and the applied minerals, shall be added the value of the Florida climate, which permits constant croppings, each acre of this "barren, sandy" soil will be more valuable, because it will



OPERA HOUSE, PENSACOLA.

produce more than the richest acre of country farm-land in any Northern State, where but one crop can be grown in a year. On this two crops at the least can be grown.

The wet lands, in addition to clearing, should be drained with covered tiles, into which water may readily find its way, and buried at least three feet under the surface. Such drains not only carry off the water in the soil, but they permit the air to penetrate where the water had been retained. These lands indicate a subsoil with the characteristics of clay or marl strata that underlie this entire region at greater or less depths. These lands are covered with a dense growth of natural grasses and weeds, or with a dense growth of trees, bushes and vines, and often the wettest places are filled with very good muck. The pines, cypresses, oaks, bays and gums, have sent their roots to great depths into these clays and marls, showing that the roots of cultivated plants can also penetrate them.

As soon as these lands shall be cleared and drained, they may be plowed and harrowed to assist in drying and aerating the soil. A free use

INTERNATIONAL HUNT AND FOX CHASE commences at De Funiak Springs January 13th, 1886.
For details, write Capt. J. B. McILWAIN, De Funiak Springs, Florida.

of shell lime sown on and worked into the soil will secure fermentation of vegetable matter, and assist in the more rapid aeration of the soil and formation of humus in it. At first no other mineral fertilizer will be required. The cost of clearing, draining, plowing and liming will be greater than the preparation and fertilizing of the oak ridges, and less than the preparation of the heavy oak and hickory hummocks; the land is not less rich in plant food, and will prove even more durable in after years than the hummocks. These lands are adapted to the growth of grasses for meadows and marshes, upland rice and sugar cane, and when sufficiently subdued, to corn, oats, potatoes and garden products.

CAPABILITIES.

From what has been already said of the soil and climate, it appears that any of these soils may be made to fertilize themselves, by turning into the soil all that will grow thereon, not considered marketable. If it be also

EXTERIOR OF FORT PICKENS, PENSACOLA BAY.

cultivated to sufficient depth to give moisture to the plants, it will be very productive, unless some special mineral fertilizer shall be required for the use of some particular crop; or the cultivation of such crop shall have been long continued, and the mineral exhausted thereby. Here, it is also true, that some crop, such as winter wheat, rye, oats and the perennial grasses may be growing during the months in which they are held on the ground of the cold regions in a dormant condition, if these have been properly prepared and fertilized. For example, the coldest hour in the winter of 1883–4 occurred on the 6th of January, 1884, early in the morning, when the mercury marked 16 F. But the day before, also that same day, the marking was as high as 40; and at 7 A. M., the mean average for the entire month was 41.9 F.; at 3 P. M., 54.4 F.; and at 11 P. M., 45.4 F., thus showing a temperature for this coldest month of the year, and for a remarkable cold

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winter in Florida, that would not kill oats, but would admit all winter grains and grasses to grow. Now, suppose one acre of land in this portion of the State were planted to rye in November, in March the rye would be headed out, and the grain ripened in April and harvested. The stubble and grass could be turned under, and the land planted with corn by the 20th of May, that last crop would ripen in September; that makes two crops of grain on the same land; but in July, let there be planted a full stand of cowpeas, that may be gathered by saving pods only. About the first of October they would completely cover the ground, and, with the corn stalks, should be turned into the soil to enrichen it. The grain of those last would more than

MERCHANTS' BANK, IN CLUBBS' BUILDING, PENSACOLA.

compensate for labor, and give about two tons of dry matter, equal to a large crop of clover, to be buried by the plow. The rye may be varied by oats, or Irish potatoes, and the corn by sweet potatoes and millet. Thus the climate gives to the farmer the power to make two crops each year, and also bury sufficient vegetable matter in the soil to even improve its fertility. In this method of constant cropping we have the example of the Japs, whose climate more nearly resembles Florida than does that of Italy. Indeed, to compare Florida climate with that of Japan would be a fair one; but to compare it to that of Italy, as is often done, does Florida injustice.

FLORIDA CHAUTAUQUA commences its second annual Assembly at De Funiak Springs, February 23, 1886. For programme, address C. C. BANFILL, Secretary, De Funiak Springs, Florida.

A man in Tallahassee had prepared his acre of land, and planted it in Irish potatoes in January, 1884. In April he planted corn between the rows of the potatoes, and dug the potatoes in May, which gave the last dressing to the corn. In July he planted between the corn rows sweet potatoes, which he harvested in November, and counted up his yield as follows: 96 barrels of Irish potatoes, worth $4 per barrel, $384; 40 bushels of corn, worth, with the corn shucks for fodder, $40; and 300 bushels of sweet potatoes, worth $1.50; a total of $574 from a single acre of ordinary farm crops, and the yield of 1885 will be of equal value. Had the acre been set with peas, peaches, figs, olives or Japanese persimmons, with less labor and

INTERIOR OF FORT PICKENS, PENSACOLA BAY.

less outlay for manures, he might have realized even greater profits; and in garden profits still more would have been realized.

But such a system of cropping implies good enough work, systematically applied, and upon small tracts of land, upon which the farmer is to find constant employment; and will ultimately result in a dense population of farmers and gardeners, fruitgrowers and their associated mechanics. Experimentations will determine the questions of the kinds and varieties best adapted to the soil and climate, and the seasons of their growth. No day need occur on which the table may not be supplied with fresh luxuries from the garden and the field. Plantings may succeed plantings, as months shall follow months, young plants being fairly set and growing before other plants mature. The capabilities of this region do not cease with the crops of the field and the garden.

THE ORCHARDS

here bear their annual crops. The dry lands, when properly fertilized, will produce orchards of pears, peaches, plums, apricots, quinces, figs and olives; and on the damper lands the pecans and European walnuts will thrive, as also on the dry lands, and produce more profitable crops than do

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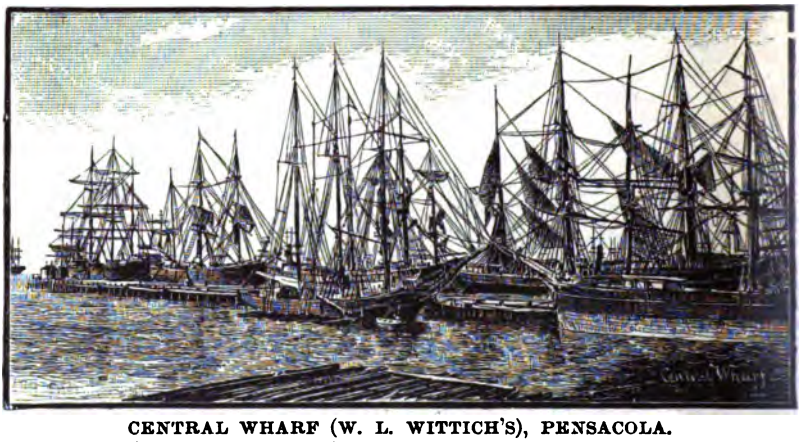
the orchards of the north, and rival the orange and other crops farther south in value.

Both wet and dry lands seeded to proper grasses, and fodder plants, can be mowed three and four times a year, yielding as many pounds of fodder at each cutting as will the best of meadows in New England or New York, where but a single crop is obtained in a year.

RAINFALLS AND DROUGHTS.

The average amount of rainfall for this belt is about fifty inches in the year. It is quite evenly distributed throughout the year, rather more abundant between the summer solstice and the autumnal equinox, which is also



CENTRAL WHARF (W. L. WITTICH'S), PENSACOLA.

the warmest and most growing season of the year, as also the one in which the greatest suffering from droughts are felt farther north. Some years there may be too little rain for the best productions of the gardens and for the fig and some other fruit trees in May, and artificial watering may be required. But waters for that purpose may be readily found, if not from springs and streams, from shallow wells and reservoirs, constructed at small expense. Deep cultivation, filling the soil with an abundance of vegetable matter, and mulching will do much towards carrying every thing through the most severe drought that is likely to occur.

COST OF CLEARING LAND.

All good, as well as economical, farming should be done on land from which all stumps and roots, that can interfere wtth the movements of the plow, should be removed. The cost of clearing will vary from $15 to $100 per acre, according to the growths upon the land. The lands upon which pines and black oaks grow being cheapest, and those covered oaks, hickories and other deciduous trees are dearest. The live-oaks are most difficult of removal. The latter lands are richest in soil, because best filled with vegetable matter; the difference in mineral matter is very slight; and it is a

SOUTHERN FORESTRY CONGRESS convenes at De Funiak Springs, Fla. December 16th, 1885. For details address C. C. RANFILL, Secretary, De Funiak Springs, Florida.

mooted question whether it is not better for the farmer opening a new place, to take the land most cheaply cleared, and work into the soil the needed vegetable matter, than to enter upon the land which shall cost most to clear. Much of vegetable matter may be produced on the land and worked in by the plow. Many contend that the cost of clearing black jack ridge land and fertilizing it is less than the cost of clearing the hummocks; and that the latter can be made the equal, if not superior soil for some purposes. However the question may be settled, the fact remains that by the aid of the

OSCEOLA CLUB, IN BRENT'S BUILDING, PENSACOLA.

Florida climatic conditions, farming in this portion of the State is a paying business on all soils not covered with water that cannot be drained off.

WHO SHOULD ENGAGE IN FARMING.

The farmer of Florida should not undertake to clear or cultivate more land than he can keep constantly producing crops for profit, or to fertilize the soil. The team can be kept constantly employed in fertilizing and working the field or the garden; and they may be producing successive crops of such plants as are adapted to each season.

Excellent pastures may be made in the piney woods, by removing brush, dead and decaying trees, logs, stumps and grubs, and plowing the surface

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so as to destroy the wild grasses and weeds, and planting Bermuda and other grasses, and the Japan clover, and be kept in good condition at small expense. This would not injure the valuable pine timber, and the stock would have ample shade. Should the pine needles accumulate so as to prevent the growth of the grass, they could be raked and carried to the orchards and elsewhere requiring mulch, and after performing that duty be plowed into the soil to enrich it. The farmer should allow none of his land to remain unproductive.

CAPITAL NEEDED BY THE IMMIGRANT.

The industrious, economical, though poor man may immigrate here and accumulate property; yet it is far better for the settler designing to engage in farming, here or elsewhere, to be possessed of sufficient means to purchase his farm, to build his dwelling and other buildings, to clear his fields and enclose them, to buy his team and a small stock of cattle and sheep, and the tools, and to supply himself, family, and teams with food, until he can raise the means from the farm for his support. With less than that the opening of the farm must be delayed until he earns the means from other labor. Though such an amount of capital would be for the best, it may also be insisted that no other State or Territory may with equal propriety be called

MAIN WHARF, NAVY YARD, PENSACOLA.

THE POOR MAN'S PARADISE.

The cost of building with lumber is here reduced to the lowest possible figures. The amount and cost of clothing, the expense for fuel and of food for the family are at minimum rates. Cattle and sheep can gather their food from the unburned range, or the prepared pastures. Something for the table may be obtained from the field and garden in less than 100 days after the seeds are placed in the soil. The immigrant needs but ask himself the question: What sum will carry me to my future residence, establish me on it,

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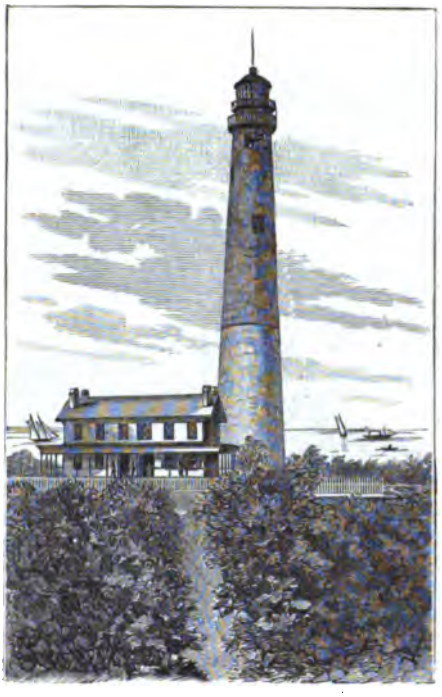
Read page 63.

and keep me for six months? After that period he should find his support from the farm itself.

HEALTHFULNESS.

Upon the dry lands, nothing but imprudent exposure of person, eating improper food, drinking impure water, residence near extensive swamps and marshes, or deposits of filth near the dwelling, can induce malarial disease. There is nothing in the soil, water or vegetable growths to produce miasma. The flat wet lands off the dry ridges, the thick hummocks, cypress swamps and banks of tidal sloughs are to be avoided as places of residence; all the balance is healthful. On the dry lands springs supply the best of drinking water. The much dreaded yellow fever has never been known to enter the dry pine ridges, and the whole region is equally secure from death-dealing diptheria and typhoids; smallpox, measles and scarletina here lose their virulence. The rays of the sun never prostrate the man in the field, and the hottest hour of less than 100 F. always has its accompanying breezes, and is followed by a cool night for refreshing sleep.



LIGHT HOUSE, PENSACOLA BAY.

The average barometrical pressure for the year at Pensacola was 30.041, or nearly half an inch higher than the average of the entire atmospheric pressure; that of Jacksonville was 30.077, nearly half an inch higher than the average of the entire atmospheric pressure. The yearly temperature at Pensacola was 68.8 F., and Jacksonville, 69.6 F.; and the dew point, which denotes the humidity of the atmosphere, was at Pensacola 58.8 F., and at Jacksonville, 61.4, thus showing that Pensacola has a drier climate than Jacksonville. No portion of Western Florida will vary greatly from the Pensacola figures. The high barometric pressure indicates freedom from tornadoes, sudden changes or violent storms of wind. The difference between the dew point, and barometric pressure and temperature, show an atmosphere not charged with humidity exceeding that of the so-called "dry atmospheres of Dakota or the mountain regions." Those suffering from pulmonary diseases can here find an atmosphere sufficiently dry and warm for their comfort. The greater pressure enables them to breathe slow, and

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they are in less danger of rupture of lungs and loss of blood thereby. Thus here is the home of the invalid, as well as the robust. The same dry atmosphere and high pressure that benefit the sick, prevent that enervation of the laborer and the student, so prevalent in other warm regions. Frosts and cold piercing winds are not here required to brace up the human system. Florida is not only the land of agricultural greatness; but it is equally the land for health of body and mind.

CONCLUSION.

Taking into account the whole matter of climate and healthfulness, cheapness of land and the facility with which it may be prepared for cultivation, the extent of its varied productions, and that some of them are

UNION PASSENGER STATION, PENSACOLA.

constantly growing, the winter warmth and summer breezes, the pureness of the water for drinking for man and beast, and the cheapness of living, it seems wonderful that such a boon should have been reserved for the present generation. Add to these the fact that while the new settler is planting, tending and waiting for his orchards of pears and peaches, figs and olives, plums and apricots, almonds and pecans, European chestnuts and walnuts, to mature, and give him stores of luxuries, he can from the same land harvest two and three crops of corn and grain, potatoes and casava, strawberries and melons, with all the products of the garden and truck farm, and because of their earliness find a ready market at top prices in the cities of the North, thus making a support for himself and family, while he fertilizes the land and the trees that are to be his ultimate dependence. The means of transportation is already provided by rail superior to any other region.

INTERNATIONAL HUNT AND FOX CHASE commences at De Funiak Springs January 13th, 1886.
For details, write Capt. J. B. McILWAIN, De Funiak Springs, Florida.

LE CONTE PEAR.

The Le Conte Pear, in addition to selling readily when green, is unexcelled when evaporated. It is especially adapted to western and middle Florida. The pear, during a history of over thirty years, has never had a

LE CONTE PEAR ORCHARD, FIVE YEARS OLD.
(From Photograph.)

case of blight. The following letter, from Thos. E. Blackshear, from whose nursery, at Thomasville, Ga., the first groves of West Florida secured their trees, speaks in terms which render comment unnecessary :

THOMASVILLE, GA., Sept. 12, 1885.

W. D. CHIPLEY, ESQ., PENSACOLA.

DEAR SIR,—The two pictures sent are photos of my five-year old orchard, at my home place, containing six acres. Put a magnifying glass on the small picture and you will observe that it brings out the trees in full bloom—this picture is a stereoscopic view. The first year I planted out this orchard I cultivated it in melons, making the finest melon crop I ever saw. The melons came off in August, when I planted field peas, making a good and profitable crop—making a crop of melons and peas on the same ground the same year. Second year I repeated the experiment with even better success. Third year I put in Irish potatoes, and took in June a good crop of potatoes ; and as soon as they were gathered I put in sweet potatoes, making two crops that year on the ground.

Fourth year I planted oats, the most destructive crop known for orchards, and gathered twenty to twenty-five bushels per acre, and after they came off in June I put in field peas and got a good crop. Fifth year I planted oats again and got a good crop, and I have now a part of the orchard in sweet potatoes and part in peas ; and while the peas were young I put in four rows of rye between the rows of trees, which is now shaded by the peas, and in early winter I expect that rye to afford me green food for my cows. This is just how I treated my orchard, and I mention it to show that a good orchard can be made and the ground utilized while the trees are coming into bearing. My orchard is now five years old, and bore its first crop the fifth year. I got a single pear out of it the second year, and it bore some specimens every year since, but not enough to call a crop. Out of my berry farm I had an acre of six and seven year old trees that gave me 514 bushels this year. I will send you a box of evaporated fruit in a few days.

Yours truly,

T. E. BLACKSHEAR.

P.S.—My reason for planting oats in my orchard was to stop the growth of the trees to some extent and make them produce fruit instead of wood.

MANAGEMENT OF LE CONTE PEAR TREES.

The LeConte pear requires a treatment in pruning peculiar to itself, by reason of its habits of growth, its tendency to run up like a Lombardy poplar, and the unusually large size the tree attains at an early age.

The tree will thrive and fruit without pruning, but they assume an ungainly shape ; some of their branches will run up too high, the fruit on them will be inaccessible and liable to be whipped off by the hard winds. The LeConte bears phenomenal crops of fruit, and should therefore be stocky,

BEACHER'S CORNER, PENSACOLA.

with large sturdy limbs, and have a well-balanced head, so that the fruit will notbe beaten off by storms, and be convenient for gathering.

In general terms, the required trimming consists of an annual shortening in of the longest branches, and removing the inside limbs so as to cause the tree to spread and form a symmetrical top.

Begin with one-year old trees, which are really the best for orchard planting. They are trained in the nursery to one stem, are about two inches in circumference at the collar and about five feet high. Three feet of the top should be cut off before or at planting. In other words, the tree should be cut back to two feet.

During the spring and summer some of the low buds should be rubbed off, throwing the growth to the upper bud. This upper or top bud should make a growth of five to eight feet, and during the winter should be cut back to four feet from the ground.

Subsequent pruning consists in annually cutting back the leader and the longer branches, and removing the inside branches. A LeConte tree should, at five years, be about fifteen inches in girth above the collar, fifteen to

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eighteen feet high, eight or ten feet across the branches at the widest part, and of symmetrical cone shape. There should be a leader in the center, and the limbs beginning at two feet from the ground diverge at intervals to the top. If the limbs, including the leader, are annually cut back, leaving the leader somewhat the longest, and the useless buds and limbs removed, the tree naturally assumes the shape before described. At three to four years old the tree commences to form fruit buds, and will require but little pruning thereafter. The weight of the fruit causes the branches to spread, and the tendency to grow tall measurably ceases, although the rapid growth of the tree continues for several years.

An average twelve-year tree is thirty inches in circumference above the collar, twenty feet high and twenty feet wide. Neglected trees would not be so large at that age. We find them profitable, and so we treat them generously.

I have heard men say that they would not take one hundred dollars apiece for their trees. And the reason they gave was that the sales of the fruit had averaged them 15 per cent. annually on that sum since they were nine years old.

RUINS OF FORT MC RAE, NEAR PENSACOLA.

The cultivation consists in stirring the soil near the trees during the growing season, breaking the crust after every rain, and allowing no weeds or grass to grow near them. Any annual crop can be grown between the rows that requires frequent stirring of the soil. The LeConte throws out no surface roots until it commences fruiting; consequently, for the first four years, all fertilizers should be applied within a radius of four feet of the tree. If the land be poor, a few applications of stable or lot manure, or wood earth annually, will be found valuable. Wood ashes or kainit in the spring and stable manure in the fall will cause a surprising growth. If, for any reason, the soil near the tree cannot be stirred, a heavy mulching of any coarse material makes a very satisfactory substitute. Chip manure from the wood pile make a fine mulching for trees in the lawn or front yard.

As said above, until the LeConte commences bearing it has few or no lateral roots (unless it is a grafted tree, and then it is no good with us), and the manure should be applied within a radius of about four feet from the

FLORIDA CHAUTAUQUA commences its second annual Assembly at De Funiak Springs, February 23, 1886. For programme, address C. C. BANFILL, Secretary, De Funiak Springs, Florida.

tree, so that it does not require a large amount of fertilizer for a young orchard. But in time the roots will occupy all the intervening ground, and if the soil is poor it should be gradually improved by growing peas and other renovating crops as opportunity offers, while the trees are young.

A word about grafted trees. We find them a complete failure here; and the same may be said concerning bastard trees, *i. e.* trees grown from cuttings taken from grafted trees. I can give no instruction as to their management, and what I have said is applicable only to a genuine pedigree LeConte tree. It is claimed that grafted LeConte trees do pretty well in some localities. The future alone can determine this.—*Wm. Jennings in Southern Cultivator.*

FLORIDA PINE AND CYPRESS.

YELLOW PINE.

The following table, copied from the "Reports on the Forests of North America," recently issued by the Department of the Interior, show the results of experiments made by them, and will be of use in dispelling, to a certain extent, the uncertainty existing in the minds of many as to the relative value of the different kinds of white and yellow pine:

GOVERNMENT TEST.

	Co-efficient of elasticity, kilogrames or milometres.	Ultimate transverse strength in kilograms.	Ultimate resistance to longitudinal pressure in kilograms.	Ultimate indentation to 1.27 Milo. in kilograms.
Pinus steabus (white pine), - - - -	851	.267	6.219	1.154
Pinus resinoso (Norway pine), - -	1.132	.341	7.274	1.353
Pinus tarda (Loblolly pine), - - - -	1.128	.377	6.834	1.719
Pinus metis (Arkansas pine), - - -	1.375	.443	7.628	2.064
Pinus palustris (Florida long leaf yellow pine), - - - - - - -	1.488	.490	10.074	2.508
Guercus ablu (white oak), - - - -	.971	.386	8.183	3.388
Guercus rubra (red oak), - - - - -	1.137	.422	8.172	2.825

In the official report the long tables, showing the behavior of these woods under transverse strain, give the first rank in this regard to pinus palustris, even above oak. As these tests were made by Government officials, who, without doubt, had no desire to be partial to any kind of wood, the statement that yellow pine is deservedly growing in popular favor cannot be gainsaid.

FLORIDA CYPRESS.

Cypress is extensively used for building purposes. Roofs, covered with cypress shingles from timber cut in winter will last for forty years. The

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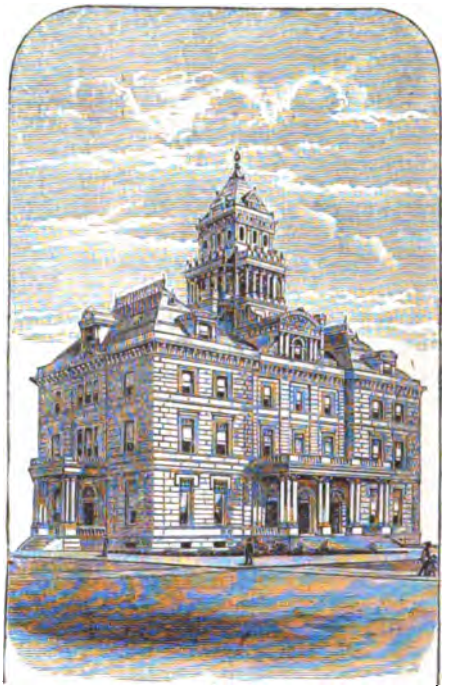
boards are preferred to pine for the inside work of brick houses and for window sashes and panels of doors exposed to the weather. Cabinet-makers use it for the inside of mahogany furniture. It has been used for the sides of vessels, and to a limited extent for masts. Large trunks are frequently made into canoes, some of them thirty feet long and five feet wide. They are more solid and durable than those of any other tree. Cypress makes the best pipes to convey water under ground, especially the red variety.

Cypress is also used for water tanks, sugar coolers and cisterns on account of its durability; some enters into the construction of houses and house finishing, it being excellent in ceiling, and large quantities are made into shingles and railroad cross ties. The Lehigh Valley Railroad Company ordered 75,000 of these ties to be used upon its road some seasons ago, and have found that they lasted splendidly. Some claim that shingles properly prepared will last 100 years. They are certainly very durable. Wood taken from submerged swamps, which has been in contact with the decaying influences of mud and water for untold centuries, is found to be in an excellent state of preservation. Cypress logs have been taken from the soil deep underneath New Orleans in good condition. Evidences are abundant and conclusive in regard to the lasting properties of the wood. Hence it is gradually creeping into use more and more each year. Already it is being used in many houses in New York city in finishing, with calls for more. Five million shingles is the estimated amount of consumption in the New York market, with an increasing demand. At least 3,000,000 feet of the wood will be required to supply the market in railroad ties. It is exported to some extent to various ports. Railroad ties have been sent to Cuba, France and England. Lumber has been sent abroad, but in no great quantities as yet, but it is destined to be of immense value and take a high stand in the wood markets of the world. Valuable areas of land, covered with yellow pine and cypress, have been opened up by the construction of the Pensacola & Atlantic Railroad. Details can be had upon application to W. D. CHIPLEY, Vice-President and Land Commissioner, Pensacola, Florida.



U. S. PUBLIC BUILDING, PENSACOLA.

SOUTHERN FORESTRY CONGRESS convenes at De Funiak Springs, Fla., December 16th, 1885. For details, address C. C. BANFILL, Secretary, De Funiak Springs, Florida.

WEST FLORIDA'S SCHOOLS AND POPULATION.

Population of West Florida by Counties.

COUNTIES.	POPULATION, 1880.	POPULATION, 1885.	GAIN.
Escambia,	12,156	17,050	4,894
Santa Rosa,	6,645	7,432	787
Walton,	4,201	4,747	546
Washington,	4,089	5,089	1,000
Holmes,	2,170	3,223	1,053
Jackson,	14,372	16,728	2,356
Calhoun,	1,580	2,094	514
Franklin,	1,791	2,297	506
Total,	47,004	58,660	11,656

The increase is within a small fraction of 25 per cent. in five years—really in less than three years, the date of the completion of the Pensacola & Atlantic Railroad. Within the same time the increase in property, as assessed for taxation, was 100 per cent.

PUBLIC FREE SCHOOLS.

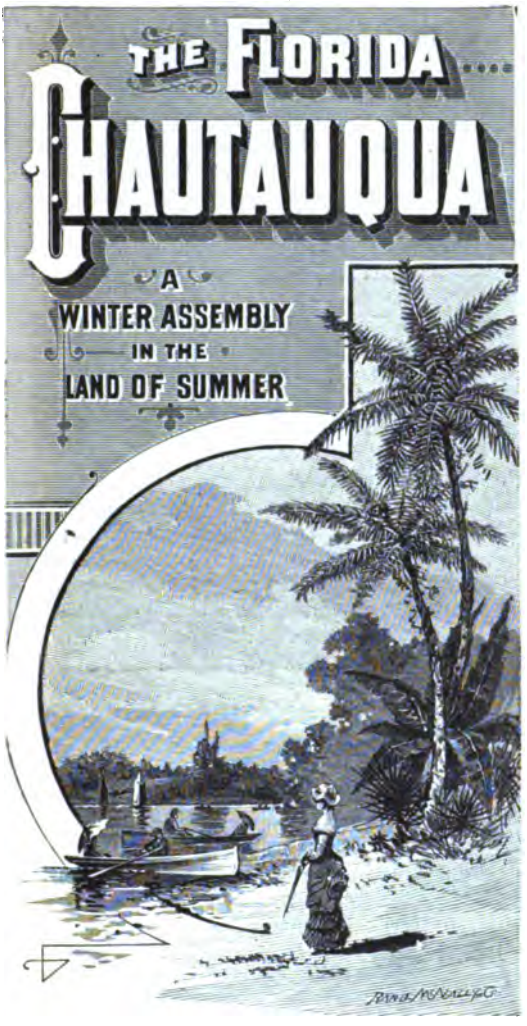
COUNTIES.	NUMBER OF SCHOOLS.		INCREASE IN THREE YEARS.	AMOUNT OF STATE AND COUNTY TAX FOR SCHOOL PURPOSES.	
	1880.	1883.		1876.	1883.
Calhoun,	4	13	9	$198.42	$811.94
Escambia,	29	29	0	6,154.29	13,964.84
Franklin,	3	4	1	1,374.74	1,604.27
Holmes,	11	20	9	187.40	1,383.12
Jackson,	48	66	18	5,977.83	4,150.84
Santa Rosa,	32	42	10	1,758.72	6,191.60
Walton,	26	26	0	1,216.98	2,704.69
Washington,	12	16	4	1,012.95	2,065.88

The report for 1884 is not at hand, but the increase was large.

PRICE OF LANDS.

Until the Pensacola & Atlantic road was built, opening a wilderness, the lands were without value. These lands are steadily advancing in price, and the history of Eastern and Southern Florida, where lands went from one dollar to fifty in ten years, will be repeated in Western Florida.

Very rich soil and health are never combined in semi-tropical countries. Why risk the health of self and family, and probably lose members of the home circle by death when the cost of medical attention and medicine would rich a soil healthy, but not so fertile naturally.



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CHAUTAUQUA DEFINED.

On the shores of a beautiful lake in Western New York an institution peculiar to this age has grown from comparatively small beginnings to be a powerful factor in the social, intellectual and religious education of the people of this country. There are ample grounds, where city and country life touch each other and intermingle. Expanse of water, skies free from the tinge of

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smoke and dust, shade of trees, song of birds, freedom and rest of nature in her simplest and most beautiful forms, and, amid it all, luxury of great hotel and elegant home, or simple comfort of tent or plainest cottage residence. There are buildings for classes, and for great audiences, parks, models, museum, appliances of every kind for work in art, science, history, literature and philosophy. There is an elaborate programme of exercises combining instruction with the persuasive influences of recreation. Lectures by the wisest and best. Music, instrumental and vocal, by select artists, great choirs, trained string and cornet bands. Spectacular and elocutionary entertainments. Beautiful pyrotechnic displays, and, in short, everything an active, fertile brain could devise to entertain and instruct the crowds that throng the place.

Central to all this is the Sunday School Normal Department for the training of teachers, and the Chautauqua Literary and Scientific Circle, with its four years' course of reading and study, and its seventy thousand students. This, then, is Chautauqua—Rest, without the weariness of travel and the relentless demands of extravagant society; recreation, without the dissipation of the fashionable resorts; instruction, without the dull routine of the school room; inspiration and uplift to the individual and home wherever it reaches.

To establish an institution on this plan and with like beneficent influences is the desire and ambition of the directors of the Florida Chautauqua; not to be in any sense a rival to the great Chautauqua, but an assistant; to do for the people who throng the winter resorts of the land of flowers what the parent institution does for the people who seek relief from summer heats and press of care, amid the groves of Chautauqua Lake.

THE LOCATION.

De Funiak Springs, the site of the Florida Chautauqua, is located in Walton county, Western Florida. It is near the county seat of the county, on the Pensacola and Atlantic Railroad, midway between Tallahassee and Pensacola. By the completion of this railroad, a little more than two years ago, the fine table land on which the town is situated was opened to settlement. It is about eighty miles in length and thirty miles in width, and with an average altitude of two hundred and seventy feet above the Gulf of Mexico, which is about twenty miles away. It is therefore accessible from the seaboard routes, or from the Central Mississippi Valley routes. The altitude of the location, its freedom from malaria, the purity of its water, and the rolling character of the ground, together with the abundant shade furnished by the pine, live-oak, magnolia and other Florida forest trees, make it a most desirable place for a winter encampment.

The grounds of the Assembly Association surround a beautiful lakelet—really an enormous spring—just one mile in circumference, and as near a perfect circle in form as can well be. The water is pure and cold, and in some places the sounding line shows a depth of sixty-four feet. From the margin of the lake the ground gradually rises to the edge of a basin about two hundred and fifty feet from the margin of the lake. The edge of the basin is as

FOR SALE.—FLORIDA LANDS OF EVERY DESCRIPTION in every section of the State. For particulars apply to W. D. CHIPLEY, Land Commissioner, Pensacola, Florida.

Read page 63.

MAIN SPRING, DE FUNIAK SPRINGS.
Nearly 300 feet above the sea, in a pine ridge; 64 feet deep; one mile in circumference.

nearly perfect in form as the lake itself. The gentle slope between the crest of the hill and the margin of the lake will be laid out in a beautiful park with a wide drive and promenade surrounding the lake. Within this park all the public buildings of the Assembly will be located. Not far away from the village, and within easy access by rail or team, are some of the most interesting places of Northern Florida. Tallahassee and Pensacola, with their wealth of historical associations; the outlook on the Gulf of Mexico; the Scotch settlement just south of the village, where for sixty-five years a large company of Scotch Presbyterians have been located, and have built up a thriving settlement; the rare fishing grounds and oyster beds of the Gulf coast; the famous Wakulla Springs; the Fountain of Youth of Ponce de Leon, together with many other remarkable and romantic places, unite to make this a most interesting spot for tourists and travelers.

THE ROUTES.

De Funiak Springs is accessible from every direction: From the WEST and NORTH-WEST, all routes and lines connecting with the Louisville and Nashville; at either New Orleans, Mobile, St. Louis, Memphis, Evansville, Louisville, Cincinnati and other points, will find direct schedules and through cars to Pensacola and De Funiak Springs.

From the NORTH-EAST, cars over the Atlantic Coast Line run through to De Funiak Springs. Through Cars are also run from Jacksonville, Tallahassee, Savannah and other Eastern points to De Funiak.

From NORTHERN and NORTHWESTERN points all passengers will reach the grounds by way of Flomaton (known as Pensacola Junction), either from Montgomery, Mobile or New Orleans. And from NORTHEASTERN points by Waycross and Chattahoochee (River Junction), and from EASTERN points by either Waycross (S. F. & W. R. R.), or by Tallahassee (F. R. & N. R. R.).

For notices concerning Sleeping Car arrangements see the various Ticket Agents representing the Lines mentioned.

Arrangements have been made with most of the Lines by which stop-over privileges at De Funiak Springs will be allowed on their New Orleans Exposition and other tickets. See page 63.

For further information concerning rates and routes, address the Secretary, or consult your nearest R. R. ticket agent.

THE ACCOMMODATIONS.

Every effort will be made by the management to secure the comfort of visitors. The new and elegant "HOTEL CHAUTAUQUA," recently erected, provides visitors with first-class hotel accommodations, including a table that for elegance of service and perfectness of cuisine cannot be surpassed in Florida. This hotel will during the coming season be under the management of Mr. M. R. Dutton, formerly of Topeka, Kansas, an experienced and successful hotel man, who will spare no pains to make the stay of guests a constant

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delight. The rates have been reduced to $2.00 per day, $10 to $14 per week. Several new boarding houses have been erected, in addition to those occupied last year, where good room and board can be had at reasonable rates.

Under the management of Mrs. S. M. Knight of Grand Rapids; Mich., an experienced and skillful teacher of the art of cookery, a restaurant will be opened, where the best of bread, cake, salads and cooked meats can be purchased ready for the table by those who desire to board themselves.

LAKE STANLEY, NEAR DE FUNIAK SPRINGS.

Fresh milk, good butter and vegatables can be purchased either on the grounds or in the village near by. The choicest of Southern fruits, fish, including the delicate pompano and the toothsome redsnapper, oysters and lobsters, venison, wild turkey and other game can be had in abundance.

The season will be suitable for camping out, and those who desire to do so can bring their camp equipage with them or rent at reasonable rates on the grounds. Lumber for the erection of temporary cottages can be had at from six to eight dollars per thousand feet. No charge will be made for tent site during the Assembly, and the management will spare no pains to provide guests with whatever is needed at the lowest possible price.

THE BUILDINGS.

There is now upon the grounds of the Association a fine $30,000 Hotel, about thirty fine Cottages and more in process of erection, an Amphitheatre

INTERNATIONAL HUNT AND FOX CHASE commences at De Funiak Springs January 13th, 1886.
For details, write Capt. J. B. McILWAIN, De Funiak Springs, Florida.

AMPHITHEATRE, CHAUTAUQUA GROUNDS, DE FUNIAK SPRINGS.
(Seating capacity, 2500.)

well finished and furnished with excellent seats, accommodating 2500 people. Good buildings for the Cooking School and Kindergarten. There will be erected in time for the opening of the Assembly, a fine Museum Building with rooms for the fine Collection already owned by the Assembly, the Studios and Exhibition Room of the Art School, and Library and Reading Room. Other Buildings will be added as they are required.

THE PROGRAMME.

The second annual season of the Florida Chautauqua Assembly will open on Tuesday, February 23d, and close on Monday, March 30th. The preparation of the programme is in the hands of Rev. A. H. Gillet, D. D. of Cincinnati, O. His large experience in this kind of work, his association with Dr. Vincent in the Chautauqua work, and his success as Superintendent of Island Park and Monona Lake Assemblies, warrant the management in the announcement that the programme will be strictly first class and up to the Chautauqua standards. Among the names on Mr. Gillet's list, and with whom partial or complete arrangements have been made, are such men as Wallace Bruce, the Rev. Charles F. Deems, D. D., of New York; the Rev. W. Adams, D. D., of Augusta, Ga.; Gen. Loring, of San Augustine, Fla.; Will Carlton, of Brooklyn, N. Y.; Miss Lydia Von Finklestien, of Jerusalem, the Rev. S. G. Smith, D. D., of St. Paul, Minn.; Prof. R. L. Cummock, of Evanston, Ills.; the Rev. G. A. Nunnally, D. D. of Eufaula, Ala.; the Rev. A. A. Willets, D. D., of Louisville, Ky.; the Rev. Frank Bristol, A. M., of Chicago, Ills.; the Rev. Lansing Burrows, D. D., of Augusta, Ga.; Rev. Arthur T. Pierson, D. D., of Philadelphia, Pa.; the Hon. Geo. W. Bain, of Louisville, Ky.; the Rev. W. A. Carter, D. D., Columbus, Ga.; the Rev. J. W. Lee, of Rome, Ga.; Hon. Will Cumback, of Indiana; Bishop J. M. Waldon, D. D., LL. D., of Chattanooga, Tenn.; Hon. W. A. Blount, Pensacola, Fla.; Prof. Leon Vincent, of Philadelphia, Pa ; Major A. J. Russell and Rev. Dr. Carter, of Tallahassee, Fla.; B. F. Jacobs, Esq., of Chicaco; Judge A. E. Maxwell, of Pensacola; Hon. S. R. Mallory, of Florida; The Rev. Frank Russell, D. D., of Mansfield, O.; Prof. W. R. Harper, D. D., of Chicago, Ills., and many others whose names will soon be announced.

Among the special attractions already engaged for the Assembly may be mentioned the elecutionary reading of Prof. R. L. Cumnock, A. M.; the spectacular representations of life in Palestine and the East; Miss Lydia M. Von Finklestien of Jerusalem; brilliant stereopticon entertainments, by Prof. E. Warren Clark, for four years professor of chemistry in the University of Japan, including an ideal foreign tour after the plan of the Chautauqua Foreign Tourists; the fascinating singing by the Hayden Quartette, fine soloists and specialists; the chorus to be organized by Prof. C. C. Case, of Cleveland, Ohio; music by a fine Cornet Band and Orchestra; magnificent illumination of the lake and grounds; music on the water by cornet band, chorus and soloists; and frequent and brilliant pyrotechnic displays.

To the more thoughtful the fine series of lectures, by men whose names have been already mentioned, on philosophy, art, history, literature, science and the science of every-day life, will be full of interest and profit.

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No lecture or attraction will be announced on the final programme of the Assembly not under contract to be given as represented, and in case of any disappointment in the appearance of the lecturers, their places will be filled by persons of equal ability.

THE DEPARTMENTS.

The following departments of work have either been partially or fully organized, and will be open during the entire session of the Assembly:

1. *The Sunday School Normal.* A course of normal class drills, conversations and lecture lessons of Biblical and Sunday school topics. The Chautauqua course of study will be the basis of the course to be followed at the Florida Chautauqua.

2. *The Art School.* Miss Chandler of Pensacola will organize under the direction of the management an art school, with a corps of first-class assistants, in which instruction will be given in the various branches of art.

3. *The Kindergarten.* This department, so popular and successful last year, will be re-organized under the direction of Miss Matilda H. Ross, late of the Chicago Kindergarten Training School, Chicago, Ill., with all the games and occupations belonging to the best furnished kindergartens, and children attending the Assembly with their parents can be placed in the kindergarten for three hours each day, while teachers and mothers can have the opportunity a model kindergarten affords for the careful and intelligent study of the principles on which it rests, and the methods employed by the best kindergartners.

4. *The School of Cookery.* Mrs. Sophie M. Knight, of Grand Rapids, lately associated with Mrs. Emma P. Ewing, of the Chicago Cookery School and the School of Cookery at Chautauqua Assembly, has been engaged to open such a school at the Florida Chautauqua.

5. *The School of Music.* A department of music, including voice culture, harmony, chorus and solo singing, and an old-fashioned singing school, will be opened under the direction of Prof. C. C. Case, of Cleveland, Ohio, with a competent corps of assistants. Persons who become members of the Assembly choir and signify their willingness to be present at its rehearsals and assist at the grand concerts to be given under Professor Sherwin's direction, will be entitled to free instruction in the chorus class. Students in the other departments will be required to pay a suitable fee in addition to the regular admission ticket.

6. *Forestry and Agricultural Meetings.* A Forestry Congress will be held on the grounds of the Assembly, opening on December 16th, and continuing for three days. Men prominently identified with the forestry movement from all parts of the United States and Canada have been invited to be present, and already sufficient interest is manifested to warrant the complete success of the undertaking.

During the Assembly in March a Farmers' Institute will be held, in which papers will be presented, and addresses delivered by experts in agriculture and kindred subjects.

FLORIDA CHAUTAUQUA commences its second annual Assembly at De Funiak Springs, February 23, 1886. For programme, address C. C. BANFILL, Secretary, De Funiak Springs, Florida.

VIEWS FROM DE FUNIAK SPRINGS.

No. 1—Cottages of M. M. Parkhurst, D. D.; M. P. Hatfield, M. D., of Chicago; Mrs. Ida Harper, of Terre Haute. No. 2—L. H. Cawthon. No. 3—Entrance to Florida Chautauqua Grounds. No. 4—Mrs. Alden (Pansey), of Carbondale, Pa. No. 5—The Misses Van Kirk, of Pa.

lege. The Chautauqua Literary and Scientific Circle is
No lecture nent; nearly a hundred thousand people in all parts of
Assembly not ıany countries of the old world are taking up its required
disappointmen urpose of the managers of the Florida Chautauqua to
by persons of to this laudable enterprise. Arrangements will be made
circle conferences and round tables running through the
Assembly. In the local circle conferences the regular
The follow will be taken up and classes conducted in them as they
organized, anc cessful local circle. The associations and fellowships
as far as possible, be renewed here, and the spirit of the
1. *The Su* s will characterize all the gatherings of the members of
tions and lect the Florida Chautauqua.
qua course of
Florida Chaut *Institute.* In the interest of ministers and candidates
2. *The A* special department has been organized, in which the
the direction utauqua School of Theology will be employed, and the
assistants, in l, the Rev. A. A. Wright, A. M., of Boston, Mass., the
D., of Memphis, Tenn., and Dr. W. R. Harper, of Chicago,
3. *The K* e of the Ministers' Retreat. A full programme of topics
year, will be arly day, and sent to all who desire to receive it.
of the Chicag
and occupati *eachers' Institute*—at which eight hundred Florida in-
attending the esent, by order of Hon. A. J. Russell, State Supt. Public
for three hou
tunity a mod ELOCUTION.
the principle
kindergartne ocution will be given under the direction of Prof. R. L.
ton, Ills., widely known as the first living Elocutionist of
4. *The* essor Cumnock will not be able to give his personal atten-
lately associ k, but will select his own assistant who will be thoroughly
and the Sch
open such a EXPENSES.
5. *The S*
harmony, ch of the managers of the Florida Chautauqua to keep the
be opened e reach of people of ordinary means. The gate fees will
a competen n possibly be and provide for the immense expense of
sembly choi ile instruction in the various departments will be at much
assist at the same instruction can be obtained for in any of the large
will be entit rooms can be secured at all prices, and other expenses
department rate as compared with the average winter or summer
admission t e of the great summer assemblies.
6. *Fore.*
held on th THE FINAL ANNOUNCEMENT.
tinuing for
ment from uncement and detailed programme of the coming session
present, an ill be printed and ready for distribution about December
success of iring copies of it, either for their own use or for distribu-
During to send their names and addresses to C. C. BANFILL,
papers will ak Springs, Florida.
and kindre

ets to Florida over Louisville and Nashville Railroad, Rate as low as by any other Route, with opportunity FLORID acola and De Funiak Springs, and to see the Highlands For progr nd TALLAHASSEE, THE CAPITAL OF THE STATE. Florida.

SOME INFORMATION.

What is the Florida Chautauqua? A *Place* and an *Institution.* As a Place, it is a delightful "Winter Resort" in the land of sunshine, having 208 acres lying around De Funiak Springs, the attractions of which are so fully set forth in this book. As an Institution, it is the center of a great Southern

ESCAMBIA RIVER.

educational movement, perfectly unique, after the methods of the parent Chautauqua of New York, already attaining vast proportions, and growing daily with unexampled rapidity.

What is the "Florida Chautauqua Assembly?" A series of five weeks' diversified exercises, in popular lectures and concerts, brilliant stereopticon exhibitions, organ recitals, watch-fires, camp-fires,—these, and many more, give abundant recreation and intellectual stimulus.

Is Florida Chautauqua a Denominational Institution? It is not. It is open to all denominations, sustained by all, useful to all, and represents the largest liberality, freedom and charity.

Are the Managers Making Money out of the Enterprise? Not one of them. Their services are given gratuitously, and most of them help to bear the expenses of the institution.

How is Florida Chatauqua Supported? By the admission at the gates, by the tuition fees of scholars in the schools, by a percentage on privileges; and by sale of lots on the 208 acres donated to the Association.

SOUTHERN FORESTRY CONGRESS convenes at De Funiak Springs, Fla., December 16th, 1885. For details, address C. C. BANFILL, Secretary, De Funiak Springs, Florida.

PENSACOLA AND OTHER POINTS IN WESTERN FLORIDA

AND THEIR ATTRACTIONS.

EXTRACTS FROM A HISTORY OF FLORIDA

Published in 1768,

GIVING ORIGIN OF THE NAME FLORIDA—CLAIM OF AUTHOR THAT THE ENGLISH DISCOVERED THIS CONTINENT—FLORIDA'S FIRST RECOMMENDATION AS A HEALTH RESORT (GIVEN IN 1763)—FIRST SUGGESTION OF A SHIP CANAL—OLDEST RECORD OF PENSACOLA'S TIMBER TRADE—AND ITS ATTRACTIVE SCENERY AS MADE OVER A CENTURY AGO.

Through the courtesy of Mr. A. Stoddart, of New York, this publication is enabled to give some quotations from a History of Florida, published by T. Jeffreys, Geographer to His Majesty: London, MDCCLXIII.

The map attached to the book shows the Apalachicola and Flint Rivers, also the Euchi (now called Euchee) Creek, which is described as flowing into the Chataouchi (now known as Chattahoochee) River, eighty miles from its source, and in the forks Jeffreys located a village called Euchi. The fort of Apalachicola is located at junction of Flint River, which is said to be 120 miles north of the sea (Gulf). The Apalachicola River is said to divide within five leagues of the sea, and the western branch is made by Jeffrey to empty into St. Joseph Bay. The heading on the first page is printed thus:

AN ACCOUNT OF THE

FIRST DISCOVERY

AND

NATURAL HISTORY

OF

FLORIDA.

Then follows the account, which is here quoted literally:

THE country called by the Spanish; Florida and which they have ceded by the late treaty to Great Britain, extends by their accounts according to the most accurate observations from about 25 deg 6 min to 39 deg 38 min north latitude and its most eastern coast lies in about 81 deg 30 min west longitude from London its whole length being nearly 1000 English miles but the breadth very variable. They extend it on the north to the Apalachian mountains where it is very narrow and make the river Altamaha the boundary between it and Ga by which they take in the whole country of the lower

Buy your Tickets to Florida over Louisville and Nashville Railroad, VIA PENSACOLA. Rate as low as by any other Route, with opportunity to stop off at Pensacola and De Funiak Springs, and to see the Highlands of West Florida, and TALLAHASSEE, THE CAPITAL OF THE STATE.

Fac-simile of engraving from a history of Florida published in 1763 by T. Jeffreys, Geographer to His Majesty (George III.), showing Pensacola in 1743, as rebuilt on Santa Rosa Island (where Fort Pickens now stands) after its destruction by the English in 1719, when it stood where Fort Barrancas now stands.

No. 1—The Fort. 2—The Church. 3—The Government House. 4—The Commandant's House. 5—A Well. 6—A Bungo.

creek Indians. On the north-west they separate it from La by the Rio Perdido. To the east it hath Ga the Atlantic ocean and the channel of Bahama or Gulf of Fla. To the south the Gulf of Mexico. Tho the Spanish gave the name of Fla to a much greater extent of country than that which we confine it to, calling all the coast lying north of the Gulf of Mexico by that appellation; yet the English were the first discoverers of this continent; for Henry VII King of England having determined to find out the north-west passage to *Cathay and India, took into his service Sebastian Cabote, a very able mariner, and fitted out two caravals for him in 1496; the account of which we shall give in Cabote's own words:

"But after certain days, I found that the land ran towards the north, "which was to me a great displeasure. Nevertheless sailing along the coast, "to see if I could find any gulf that turned, I found the land still continent "to the 50th degree under the pole; and seeing that there the coast turned "toward the East, despairing to find the passage I turned back again and "sailed down by the coast of land toward the equinoctial (ever with the "intent to find the said passage to India) and came to that part of this firm "land which is now called Florida where my victuals failing I departed from "thence and returned into England."

Jeffreys goes on to say; Eighteen years after this discovery of the continent by Sebastian Cabote John Ponce of Leon being discharged from his government of Boriouena now called Porto Rico in which he had acquired great riches fitted out two caravals in order to discover the island of Boiaca in which the Indians said there was a ‡ spring the virtue of whose waters was to restore youth. Having wandered in vain for six months he came be accident to the † Biminis and discovered the land of Florida in 1512 on Easter day which the Spaniards call the Flourishing day of Pascka and from thence gave it the name of Florida.

Jeffreys, speaking more than a century ago, refers to the "heats allayed by the cool breezes from the sea." He adds, "notwithstanding the climate of Florida is, as we said, warm, it is not for that reason less pure and wholesome, the best testimony of which that can be given is the size, firmness and strength of constitution and longevity of the Floridan Indians; in all these particulars they far exceed the Mexican"—Florida's first recommendation as a health resort on record. Jeffreys' mention of the animals, customs and productions of the country are interesting, but cannot be produced here. He speaks of chestnut trees in abundance, and of limes, but not of oranges, save once where one Capt. Thomas Robinson, in writing to Geo. Lookup, Esq., says the vegetables here are innumerable; for all that grow in Europe are in perfection, and many that cannot stand the inclemency of our winters thrive here. It has excellent timber and shrubs of various kinds, viz., oak, pine, cedar, mulberry, apple, ORANGE, peach, cocoa, grape, olive, vanilla, moho cabbage, *lightwood* §, and mangrove trees, besides many European fruits which are introduced. Mulberries, grapes and olives grow spontaneously. In many places Jeffrey refers to grapes exceeding the muscadine and from which wine can be made. He no doubt referred to the scuppernong. He says cotton grows wild, and hemp, flax, and cochineal abound, "but

* China. † Laid down as a Bahama Island south of 26° on Jeffreys' map.

‡ Jeffreys fails to locate this spring, but the wonderfully beautiful spring near the P. & A. Railroad, about [illegible] miles east of De Funiak Springs, is as clearly marked by tradition as Ponce de Leon's Spring, as is De Soto's camp at De Funiak on his march to the Mississippi River.

§ Lightwood continues a staple production of Florida.

Fac-simile of a Spanish engraving, published in 1783, of the surrender of Pensacola by the English to the Spanish and French armies in 1781, showing destruction of Fort San Miguel, the ruins of which still remain on the hill (75 feet above the Bay) at head of Palafox Street.

above all, sassafras is speaks of the
fruits, birds and anim d wonderfully
chapter comes nearer l." In many
a Spanish ship was ca round in each
sacola as being first b al. His map
the place was "first
in his unsuccessful e
donado, one of Ferd
Port d' Anchusi. In
Maria. In 1693 Don
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Pensacola (which wa
bay, but who were
province.

ARRANCAS.
In 1686.

In 1696 Don An
fort with bastions, w
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the old town and fort
Spaniards built the ‡
detached and secure
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white as snow and ca
abounds with great
defended by a small
the Governor's, *
drawn by a person w itish trade by
of the Havana Comp an the course
place. As soon as h
wherry for New Orle and security;
Dauphine, the isles a oad (highway)
a Guion into Lake He mentions
Orleans, where, after are familiar in
Havana Company's his highway at
trade and returned t
with two masts for panish re-took
their voyage to Hava til 1722, when

As Jeffreys' book n Santa Rosa
a health resort, so d mained on the
timber trade. e site was re-

Those early visit Pensacola was
scenery. Robinson egular form in
capable to pitch a b allies in 1781.
the same time, not o f Pensacola in
the rich and beautif ruins of which
equally attracted wi tion above the
Robinson refers to t rt San Miguel,

* This bay has been for DESCRIPTION
Galvez, who captured Pensac or particulars
† See illustration of its ru lorida.
‡ This location was wher
§ A *fac simile* of this vie

is 98 feet above tide water. Under the engraving of the capture of Pensacola, a *fac-simile* of which is given on another page, is a description in Spanish, which says that on the 9th of May, 1781, the forts and town of Pensacola, then the capital of West Florida, surrendered to Don Bernardo Galvez, commanding the army of His Catholic Majesty, after twelve days of open warfare and sixty-one days after his landing on the island of Santa Rosa. The English garrison, which was commanded by Messrs. Peter Chester, Vice-Admiral and Governor-General of the province, and Jonah Campbell, Field Marshal, consisted of 1700 men, exclusive of negroes and indians, but there remained but 1400 or thereabouts who were made prisoners of war, the rest having been killed or blown up in the Demi Lune (half moon), which exploded at the moment it was to be assaulted—193 pieces of artillery were found by the captors. The Spanish general praised the conduct of the French who came to assist in the siege under the command of Mons. de Monteil, chief of the naval forces. The 700 men of this nation, who were commanded on shore by Mons. de Bordera, captain of a frigate, behaved with great courage.

On the 7th of November, 1814, Gen. Andrew Jackson, with the American army, entered the town, when the English fleet in the bay destroyed the forts, San Carlos (at Barrancas) and Santa Rosa. Spain recognized "manifest destiny" in 1819, and ceded to the United States the entire territory of Florida. She was admitted into the Union as a State in 1845. During the war between the States, a considerable portion of the old Spanish buildings were destroyed, but many still remain, and their quaint appearance strikes the stranger immediately. Since the war, Pensacola's advance has been marked. Its population, from 1000 or 1200 at the end of the war, was 3750 in 1870; 6700 in 1880, and by a census made in this year (1885) is now 9200. Its progress in architecture can be seen in its many new edifices. Extensive docks have been constructed and other improvements accomplished, which stamp Pensacola as a growing city. Building never ceases but moves steadily along. To illustrate fully Pensacola's prosperity, it is only necessary to add that all this building has left no vacant houses, while tenants seeking homes are numerous.

As this publication is not only for the eye of the pleasure-seeker, invalid, tourist and sportsman, but also for the business man, mention is made of Pensacola's commercial importance. Pensacola Bay, spacious enough to accommodate the navies of the world, and deep enough to load and discharge the largest vessel alongside the railroad docks, renders Pensacola's position unrivaled. Its easy access to and from the Gulf, its direct accessibility to and from the Western, Northwestern and Central Southern States, must furnish a very large, regular and rapidly increasing business in transportation to and from its ports, not only of lumber, but also of cotton, grain, coal, iron and all the products of the West Indies and South America.

It is but necessary to add Pensacola's Annual Marine Statement, for the ar ending July 1, 1884, to astonish the uninformed:

ign vessels entered,	372	Tonnage,	248,018	Men in crew,	5119
rican " "	51	"	19,912	" "	341
sting " "	170	"	80,718	" "	1525
Total vessels,	593	Total tonnage,	348,648	Total No. crew,	6985

The value of exports from Pensacola during the same year amounted to 3,025,246.

Consider men coming to Pensacola each year from every quarter of the globe, the 1200 stevedores and assistants who make Pensacola their winter home, and its resident population of nearly 10,000, and it can truly be said that Pensacola offers more stir, variety and reality of life than any city in Florida. What port in the State, or in America, can show over 100 square rigged vessels in its harbor at one time, as is often the case at Pensacola? This attraction will steadily enhance, as arrangements are being perfected to export iron and coal in increased quantities, *via* Pensacola; and cotton and grain shippers have at last awakened to the remarkable facilities that are offered by the port, and the exportation of both has been fairly started. Frequently the fleet of ocean-going vessels is larger at Pensacola than at New Orleans, steamers excluded.

CLIMATE, HEALTH, SOCIETY, CHURCHES, SCHOOLS.

Florida has been called the Italy of America, and the thousands who have breathed its genial, healthy, life-giving atmosphere will cheerfully testify that it is no misnomer. In summer the heat is tempered by a Gulf breeze of softness and purity unsurpassed, and the thermometer seldom reaches 92°. Sergeant McGauran, U. S. S. C., from thermometrical observations at his office, in Pensacola, gives the following table of mean temperature:

January,	49.5	July,	82.9
February,	55.2	August,	81.1
March,	57.9	September,	78.7
April,	64.8	October,	73.7
May,	76.3	November,	61.2
June,	82.4	December,	49.6

The "Indian Summer" of the Middle and more Northern States closely resembles a Florida winter, and will convey a better idea than can be written of a season which in Florida admits of life in the open air, while citizens of the North are hovering over great fires or shivering in heavy wraps, as the rude blasts of winter cut to the bone. The fact that the thermometer rarely falls below 32° fits Pensacola as a grand sanitarium for the whole country.

At Pensacola, the resident of a colder and less genial clime will enjoy the most perfect transformation. The senses are rapt by the novelty of the surroundings, the suddenness and entirety of the change. The traveler will experience, in addition to the charms of climate, attractions and excitements unknown to other parts of Florida.

Pensacola's baths, boating and fishing are rapidly increasing its popularity as a summer resort. Winter and summer, its healthfulness is marvelous. Winter visitors luxuriate in a soft, salubrious atmosphere, with health in every breath. All classes of chronic diseases, such as diarrhœa, dysentery, rheumatism, diseases of the kidneys, and incipient pulmonary cases, are benefited and relieved by a visit to Pensacola.

Invalids in the advanced stages of phthisis pulmonalis, who have visited St. Augustine, have experienced the too stimulating effect of the salt air. This class will find the same difficulty at Pensacola, with this difference and advantage: they can remove into the interior, and among the piney woods, at such health resorts as De Funiak Springs, breathe the salt air of the Gulf,

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modified by its transit through the pine forests into gentle zephyrs, which the invalid may safely inhale, and which never fail to reanimate and benefit. At the same time the location is not out of the world, but within from three hours to twelve hours' journey from the cities of New Orleans, Mobile, Pensacola, Montgomery, Tallahassee, Jacksonville and Savannah.

Statistics testify to the healthfulness of Florida. Notwithstanding the fact that so many thousand consumptives resort to the State for relief, the proportion of deaths from pulmonary complaints in it is less than in any other State in the Union. The census of 1880 showed that these deaths were as follows:

Massachusetts, . . .	one in 283	California, ...	one in 450
Maine, ...	" 315	Virginia, ...	" 585
Vermont, ...	" 463	Indiana, ...	" 599
New York, ...	" 379	Illinois, ...	" 698
Pennsylvania, . . .	" 479	Florida, ...	" 1433
Ohio, ...	" 507		

The Presbyterian, Methodist, Episcopal, Baptist, Lutheran, Scandinavian and Catholic congregations have comfortable church buildings. The system of public schools is liberal and efficient, and in addition a number of private schools are well supported. Principal among the charms of Pensacola is its society. The people are pleasant, refined and intelligent, and the stranger is surprised at the cordial hospitality extended from every quarter.

HUNTING, FISHING, BOATING, BATHING.

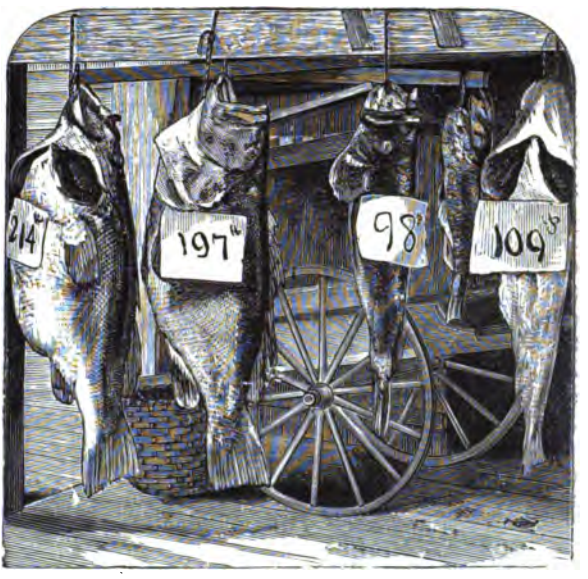
By consulting the map of Pensacola and its surroundings, the reader will observe the network of water-courses, bays and bayous centering at that city. The water is clear, bright and beautiful. Surf bathing upon Santa Rosa beach, as enjoyable as language can express, the salt water bathing in the bath-houses of the bay, and bathing in fresh water as clear as crystal, can all be had within a distance of seven miles.

One may grow weary of rivers, which soon become monotonous. How different the broad, beautiful Bay of Pensacola! On its rolling waters one can never tire. For lovers of St. John scenery the Santa Rosa Sound offers a magnificent substitute, with Santa Rosa Park skirting its bank on one side, and only Santa Rosa Island, with its narrow strip of soil, between it and the blue waters of the Gulf of Mexico on the other. The Perdido Bay is one of the loveliest sheets of water in the State, rivaled by the Escambia Bay, with its bluffs and ever-moving fleets. Any attempt to particularize becomes confusing, as the special beauties and attractions of the different bays and bayous are remembered. Escambia river is the "Ocklawaha" of West Florida.

The fresh water fishing is superb. The waters literally swarm with all kinds of fish, notably trout, black bass and pike. All varieties of perch abound, including a special kind, a very game fish, called bream. It is not unusual for a good angler to pull out fifty to sixty of these fish in an hour, weighing from a half pound to one pound. Both in salt and fresh water shing is carried on with pleasure and profit the entire year. In the bay nd bayous every description of salt water fish abound, and in the season fty cents will purchase a dozen Spanish mackerel of the size for which the

NTERNATIONAL HUNT AND FOX CHASE commences at De Funiak Springs January 13th, 1886.
or details, write Capt. J. B. McILWAIN, De Funiak Springs, Florida.

epicure pays seventy-five cents for one-half in the restaurants in New York City. These fish, and the salt water trout, give special excitement to those who love a contest with a very game fish. No one can claim to have seen what fishing is until they have visited the snapper banks off Santa Rosa Island. The Pensacola fish illustrated in this book are of the Warsaw variety, quite a nice fish. The largest was caught by Mr. Thos. R. Hopkins, of 24 Vesey Street, New York. There the famous red snapper can be caught often two at a time, weighing from five pounds to sixty, as rapidly as the line is thrown in. The limit to the quantity that may be caught is commensurate with the physical endurance of the catcher.



PENSACOLA FISH.

It is claimed that no one can know the flavor of fresh fish until he has eaten a pompano, at Pensacola. Our city's importance as a fishing point is best illustrated by the fact that its dealers ship all kinds of fish to Mobile, New Orleans and other points, by express, in addition to shipments of fish by freight by the car load. One hundred barrels a day by express to all parts of the country is usual from December to April. Another very attractive amusement is turtle hunting, on Santa Rosa Island. It is not unusual to find as many as 180 eggs in one nest. All around the city, on the railroads and water courses, and opposite it, in Live Oak Plantation, every description of game can be found, in large numbers, including deer, turkeys and partridges, with an occasional bear. It should impress every one that it is not necessary to exile one's self, and endure all the imaginary pleasures of camp life, to secure the best possible sport with rod and gun; both are within from one to three hours' ride or sail of the hotels. The splendid duck shooting at the mouths of the rivers, in season, should not be forgotten. Oysters of the finest size and flavor are taken in any quantity wanted. Attention has been turned to planting the bivalve, with fine results. Mr. Alexander Stoddart, of No. 34 Nassau Street, New York, set out 750,000 in Bayou Texar, along the water front of his fine estate in one season.

This chapter would not be complete without mentioning the facilities for reaching, *via* Pensacola, St. Andrew's Bay, St. Joseph, Apalachicola, and other famous fishing grounds and hunting fields of the Florida coast.

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ST. ANDREW'S BAY,

which has long had the reputation of being one of the most charming places in Florida, has just taken on a boom. A hotel is now being constructed there, and persons who have gone and seen return pleased and express their satisfaction in unmeasured terms.

THE VICINITY OF PENSACOLA.

The pleasure of boating at Pensacola is not confined to fishing or idly rolling on the mighty waves, or smoothly plowing the placid waters; but added to these charms are the numerous places in the vicinity to go to. The stranger who may visit it will not wonder at finding first on this list Santa Rosa Island. Upon its beach, mid-day in its overflowing brilliancy, makes the beholder feel as if, according to Milton, "Another morn had risen on mid-noon."

Across the bay is the Navy Yard, and just west of the Navy Yard is Fort Barrancas. Both are beautiful, and will interest the most indifferent. Added to the novelties to be seen, is the delightful society enjoyed by all who know the hospitable and intelligent officers of both garrisons. Below Barrancas is the Pensacola Lighthouse. Near by is Fort McRae, once familiar with the "pomp and circumstance of glorious war," but where now the solemn bat, which for years reigned supreme, is left without shelter, and a deep silence prevails, only broken by the never-ceasing roll of the mighty ocean, as the wild waves dash upon its once proud walls. Years ago it was built upon a foundation which seemed as enduring as granite, but the Gulf threatened, and for a time its fall was averted by the construction of an immense sea wall. The rolling waters could not be withstood. It is at McRae that the searcher after shells and other marine treasures is most successful. With the old Spanish fort, the pretty villages of Milton and Bagdad, the Live Oak Plantation (now called Santa Rosa Park), bays, bayous, sounds and rivers, this chapter might be extended indefinitely. Suffice it to say that the visitor at Pensacola must tire of going, seeing, enjoying, long before the list of attractive places to go to have been exhausted.

WEST FLORIDA—ITS LOCATION AND PRODUCTIONS.

West Florida has been in no respect an agricultural country, for the reason that heretofore the timber interest has absorbed the entire energies of the country, and before the construction of the Pensacola & Atlantic Railroad, necessary transportation was wanting. The timber wealth is on the surface, but under the surface lies hidden wealth which is yet to be dug out of the soil. The climate, as explained in a previous chapter, is semi-tropical and devoid of extremes in heat and cold. The country is the best watered in the world, and its healthfulness is as near perfect as that of any section of the globe. The completion of the Pensacola & Atlantic Railroad through a wilderness has made known its attractions and advantages and already the entire line is dotted with happy homes, churches, schools and villages. Great ertility by virtue of soil, much of the lands of West Florida do not possess, hough some of the richest is within her limits; nor can the combination of xtreme fertility and health be found in any new country. Its agricultural

LORIDA CHAUTAUQUA commences its second annual Assembly at De Funiak Springs, February 23, 1886.
r programme, address C. C. BANFILL, Secretary, De Funiak Springs, orida.

features have already been set forth by Judge Knapp, a disinterested expert, in the first chapter of this publication.

The first settlers in West Florida will find a large and remunerative market at home for their truck and other products—articles now brought from the up-country by the train-load to supply the resident and visiting population. When the home supply has been met, the farmer will find the lines of transportation cheap, quick and reliable, leading to the great Middle and Northwestern States, where the fruit shipper from Florida will not encounter the disastrous island competition met with in the cities of the East, where East Florida finds its principal markets. The nearer proximity of West Florida to the interior markets must create a steady and rapid advance in its agricultural interests.

ESCAMBIA CO. COURT HOUSE, PENSACOLA, FLA.

The new-comer will find lands on the railroads for sale, but should other points be preferred it requires but a glance at the map to note how all the rivers, bays, sounds and bayous, from the Perdido to the Choctawhatchee River, centre in Pensacola Bay, making Pensacola their natural business metropolis, to whose market crops can be floated safely and cheaply.

The scuppernong grape deserves some mention here. Lord Raleigh landed in North Carolina, near Newbern, nearly two centuries ago; he there tasted the scuppernong for the first time, from a vine still in existence, which three years ago, it is said, yielded forty-two barrels of wine.

West Florida is rapidly becoming the home of the Le Conte pear tree, which never blights.

FROM PENSACOLA EAST.

The fast Atlantic express train over the Pensacola & Atlantic division of the Louisville & Nashville Railroad for Jacksonville, Tallahassee, Thomasville, Ga., and all East and South Florida points, Savannah, all Atlantic coast points and New York, the only direct route to

MIDDLE FLORIDA,

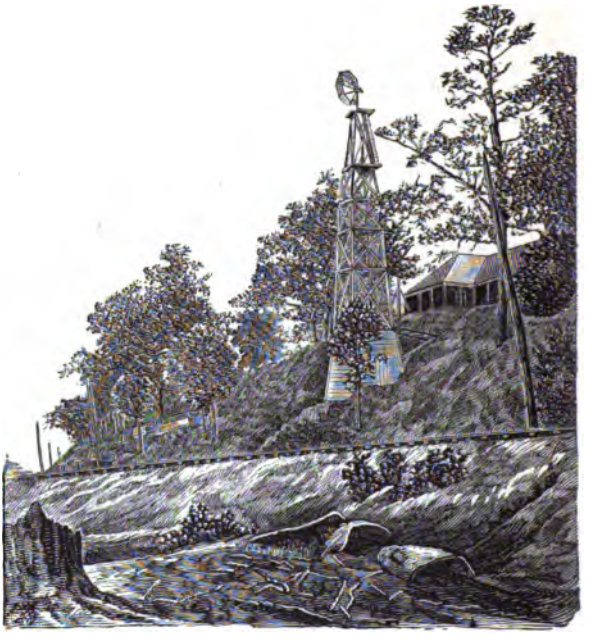
leaves Pensacola in the early morning. Just at the city limits Bayou Texar is crossed, and for the next twelve miles we have on the right the Bay of

Buy your Tickets to Florida over Louisville and Nashville Railroad, VIA PENSACOLA. Rate as low as by any other Route, with opportunity to stop off at Pensacola and De Funiak Springs, and to see the Highl- - of West Florida, and TALLAHASSEE, THE CAPITAL OF THE STAT

Escambia, on the left the high bluffs. Of these a noted traveler writes as follows :

BLUFFS OF THE ESCAMBIA.

"No railway in the South, with which we are acquainted, makes such a pleasant start from its initial point as does the Pensacola & Atlantic. For several miles after leaving the City of Pensacola, and crossing the mouth of Bayou Texar, the road follows the picturesque western shore of Escambia Bay, just above the reach of high tide, and along the base of the towering parti-colored clay Bluffs which impart to this lovely expanse of water one of its most striking characteristics. In many places these Bluffs of the Escambia, with their water-furrowed and precipitous sides, grassy slopes, and forest-crowned summits, have often recalled to us the Palisades of the Hudson; and those as familiar as we are with both localities will not consider the comparison far-fetched or inappropriate. It must be admitted, that, for many miles above Pensacola, the Bay of Escambia, in extent and beauty, fully rivals the far-famed Tappan Zee, or any other of the broad 'reaches' of the lordly Hudson; and the Bluffs to which we allude are neither so lofty nor extensive as the Palisades, they stand out boldly and prominently along the shores of this grand old Spanish bay and invest it with a marked dignity and grandeur.



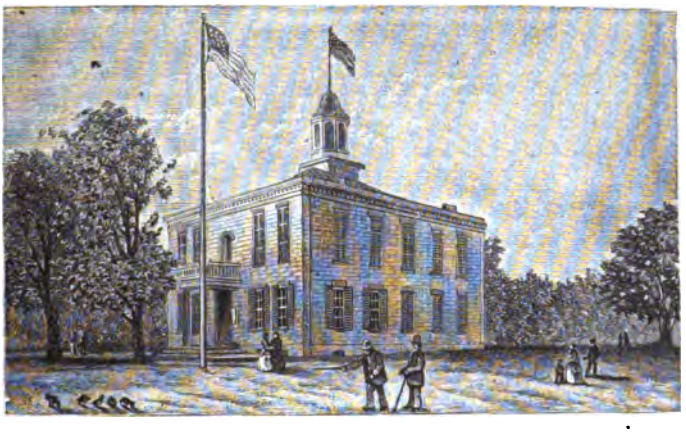
MAGNOLIA BLUFF. PLEASURE RESORT NEAR PENSACOLA.

Magnolia Bluff, three miles from Pensacola, is a beautiful suburban pleasure resort, and picnics, dances, concerts, etc., are given all through the summer; a handsome dancing pavilion, a grand stand capable of seating one thousand people, restaurant and other buildings have been erected; base-ball grounds have also been laid out, and the votaries of our national game repair here frequently and in large numbers to witness the playing of home clubs, or as is often the case, a home club pitted against professional talent from abroad. Here also the citizen soldiery of Florida gathered in their first annual encampments. Gull Point, down the bay seven miles by rail from Pensacola, is the sight where the first Territorial legislature in Florida met. Immense live oak trees, from which the long moss grows with a rare luxuriance, stud the landscape thickly, giving it a weird and ghostly look as at moment the bay is hidden behind them.

Volumes could be written of this ten miles along the beach, from Pensacola to the long bridge over the bay, but our space is limited. The two and a-half miles of bridge, as firm as rock, are passed in a few moments. Arcadia, a beautiful and healthful summer resort, is passed in the distance, in fact, entirely out of sight of the road.

MILTON

comes next, twenty miles from Pensacola, a town of 1200 inhabitants, a place of considerable importance. Milton is a delightful place, and destined to be a great resort and school centre. The place, nestled amid its trees, near its



SANTA ROSA COURT HOUSE, MILTON, FLA.

pleasant neighbor, Blackwater, both being only less charming than their hospitable people, only need a hotel to fill their streets with visitors ; for it is only necessary for their attractions to be seen to be appreciated and the first hotel would be rapidly followed by others. Leaving Milton, we cross the Blackwater river and plunge into an almost primeval pine forest, broken at intervals by a group of railroad section houses, and an occasional saw-mill. This lasts forty miles, and is succeeded by open blackjack woods, interspersed with "heads," redolent with the perfume of the titi and magnolia in spring, and at all times of the year full of game. Deer are found here in great abundance. Wild turkeys, wild duck and quail are plentiful, and the streams we cross fairly swarm with fish. We pass Chaffin's, Crestview, and several other stations, and come to De Funiak Springs, where, at the Hotel Chautauqua, our traveller, be he seeker after health or pleasure, can find his hearts desire.

DE FUNIAK SPRINGS,

300 feet above the sea, 64 feet deep, located amidst the pines, and the Hotel Chautauqua, with its first-class accomodation, have already received men-

SOUTHERN FORESTRY CONGRESS convenes at De Funiak Springs, Fla., December 16th, 1885. For details, address C. C. BANFILL, Secretary, De Funiak Springs, Florida.

tion. Near De Funiak Springs is Smith's mill, which every visitor should see. It cleans rice and grinds grist, every part being constructed by Smith without nails. His ox "Souny" he never allows to visit De Funiak without his false horns, which he is adjusting in the illustration. The iron spring on

SMITH'S MILL, NEAR DE FUNIAK SPRINGS.

his place, Smith says, runs through two "stratagems" of iron. Going four miles east the traveler reaches

ARGYLE.

Like Milton, Marianna and Chipley, it only needs larger hotels to secure visitors, for its location is as healthy as any in the world. It is only a few miles from Eucheeanna, the centre of the sturdy Scotch colony, which settled in the wilds of West Florida, nearly three quarters of a century ago, and have peopled this section with a population which has always been respected for the industry, honesty and intelligence displayed.

Seven miles from Argyle is Ponce de Leon, with its immense spring spouting forth a large volume of water, and said to be the identical "Fountain of Perpetual Youth" which Ponce de Leon did not find.

Seven miles further on is Westville a thriving little village on the west bank of the Choctawhatchee river; the woods around are full of game, and the river abounds with the finest fish.

CARYVILLE,

a large milling point, owned by W. L. Wittich, on the opposite or east bank, is the point of debarkation for

GENEVA, ALA.,

a beautiful little oak-embowered village of South Alabama, situated on a high bluff, near the junction of the Choctawhatchee and Pea rivers, and surrounded by a fertile country, reached by steamboats. The place is an im-

Buy your Tickets to Florida over Louisville and Nashville Railroad, VIA PENSACOLA. Rate as low as by any other Route, with opportunity to stop off at Pensacola and De Funiak Springs, and to see the Highlands of West Florida, and TALLAHASSEE, THE CAPITAL OF THE STATE.

portant business centre and also offers inducements to the tourist seeking side trips. Boats also run above Geneva, and it is expected will soon be enabled to reach

NEWTON,

another important and pleasant village.

From the Choctawhatchee river, at Caryville, the P. & A. R. R. runs through a good agricultural country, cotton and cane fields begin to appear, and everybody seems prosperous and happy. Near

CHIPLEY,

A prosperous and growing place, 117 miles from Pensacola, there is some very pretty scenery, a beautiful waterfall, known as "Falling Water," and a

JACKSON CO. COURT HOUSE, MARIANNA, FLA.

hill many acres in extent, strewn with huge rocks, a great novelty to the average Floridian, if not to the tourist from other parts of the country.

The growth of the business of Chipley has been phenominal, and it continues steadily. Its great need is a good and large hotel. At this point the rail passengers for St. Andrew's Bay disembark and take teams for that attractive place. Not mentioning several saw mills which are not regular stations, and passing them as others have been passed, next comes

COTTONDALE,

a growing village, Jackson county being the richest agricuitural county in the State.

MARIANNA

is a handsome little village of 1500 people, and the surrounding country has some of the most remarkable natural phenomena. In one place a navigable river (the Chipola) passes out of sight under the earth and comes to the light again a mile farther on, forming a natural bridge with an im-

FOR SALE.—FLORIDA LANDS OF EVERY DESCRIPTION in every section of the State. For particulars apply to W. D. CHIPLEY, Land Commissioner, Pensacola, Florida

Read page 63.

mense cavern at its upper end coming down to the water's edge. Four miles from the bridge is a cave with stalactites and stalagmites of great extent and beauty. A little farther on is Long Moss Spring, a large creek springing up from the very bowels of the earth; the force of the water is so great that bricks thrown into the boil are thrown off as "dew from the lion's mane."

LONG MOSS SPRINGS, MARIANNA, FLA.

From Marianna to River Junction (eastern terminus P. & A.) is only twenty-five miles.

SNEADS

intervenes, a fine agricultural country, celebrated, even amid this great plethora of fish and game, for its magnificent fishing and hunting. To Cypress Lakes, Dead Lakes, Lake Ochesee, fishermen come from three States and camp here for weeks, and take fish without limit. Ducks, turkey and quail, deer and the large fox squirrels, are almost as thick as leaves in Valambrosa.

The road crosses the Apalachicola river three miles below the junction of the Flint and Chattahoochee. One and a-half miles from the river bank is River Junction; here connection is made with the Savannah, Florida & Western Railroad for Bainbridge, Thomasville, Waycross, Savannah, Jacksonville, and all points North and East, with the Florida Railway & Navigation Company's lines for Tallahassee and all of Middle Florida, Jacksonville, Fernandina and South Florida, with through cars from Montgomery and Pensacola via De Funiak Springs to Orlando.

TALLAHASSEE.

Many days may be spent pleasantly on the Tallahassee hills, if we would "do" all the excursions which are afforded. Lake Lafayette, of which we have spoken, is so called from its location on the estate granted to the Marquis de Lafayette by our own government. Lake Bradford, Iamonia and Jackson, must all be rowed over and fished in. The residence of Murat must be visited and asked about; the St. Mark's river investigated, as to why it will not run on top of the earth all the time, like all well regulated rivers, but will persist in going part way under ground.

LIFE

AND

ADVENTURES

IN

SOUTH FLORIDA.

BY

ANDREW P. CANOVA,

OF PALATKA,

ASSISTED BY L. S. PERKINS,

WITH

AN INTRODUCTION BY HON. R. W. DAVIS.

PALATKA, FLA.:
THE SOUTHERN SUN PUBLISHING HOUSE.
1885.

Entered according to Act of Congress, in the year 1885, by ANDREW P. CANOVA
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TO

MY COMPANIONS-IN-ARMS,

AND

OTHERS WHO FOUGHT FOR THE PEACE AND PROTECTION OF FLORIDA,

THIS LITTLE VOLUME IS RESPECTFULLY INSCRIBED.

ANDREW P. CANOVA.

INTRODUCTION.

Most of the sketches contained in this collection were contributed by Mr. ANDREW P. CANOVA, the author, to the SOUTHERN SUN, of Palatka, and attracted very general and favorable attention. While never intended by Mr. CANOVA for other than weekly newspaper articles, the suggestion of their permanent preservation in some collected form was so often made him that he finally consented to give them to the public in this little volume. It graphically deals with a phase of life in Florida which will no where else be found.

DeBry and Barcia and Fernandez and Sprague have written at different times of different epochs, and in several different languages, descriptive sketches and snatches of our history, while Mr. Fairbanks, in his excellent book, has taken us along with entertainment and instruction from those early days which knew Juan Ponce de Leon and Menendez to the times of Worth and Gaines and Clinch.

But it is left to Mr. CANOVA to pen-paint the scenes and incidents of soldier-life and adventure during the Indian War and to describe those hardships which the soldier experienced in morass and tangled scrub, or those pleasures he enjoyed in bivouac and camp. Hunting adventures, too—and Indian life—those fascinating realities which cover themselves with a halo of romance. The life of the early "settler" when the bear and panther roamed the wilds of a then sparcely inhabited State. These features are all touched with an unpretentious but smoothly-gliding pen, and make enchanting reading for Floridians of to-day—to-day, when immigration from North and South and East and West has filled or is rapidly filling our waste places—when the palatial steamboat plies the waters where once quietly glided the canoe, and when the scream of the locomotive is borne upon the balmy southern air where once the warwhoop of the red man resounded.

Very respectfully,

ROBT. W. DAVIS.

Palatka, Fla., Oct. 20, 1885.

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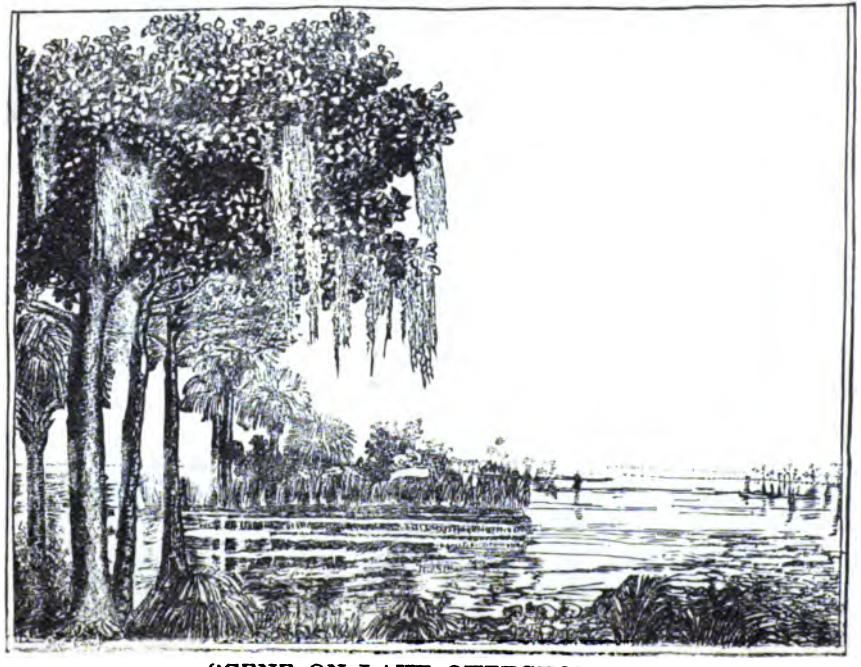


SCENE ON LAKE OKEECHOBEE.

A Sha.
Flo.

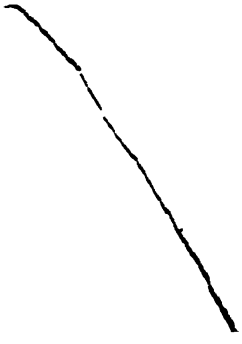
Which the Ink
and the Pen .

Drawn By Sigma. JIM COOK AND THE SQUAWS.

CROSSING THE EVERGLADES.

SOUTH FLORIDA.

PART FIRST.



LIFE AND ADVENTURES IN SOUTH FLORIDA.

PART I.

REMINISCENCES OF A TRIP THROUGH THE EVERGLADES AND BIG CYPRESS, DURING THE LAST INDIAN WAR.

CHAPTER I.

HOW THE LAST INDIAN WAR BROKE OUT.—MY FIRST ADVENTURE.

In the following pages I shall give, with all possible accuracy, my adventures during the last Indian war, and it shall be a description of personal experiences and observations, rather than a history of the war itself. In writing a strictly truthful account of the scenes through which I passed, as a private soldier, in the campaign of 1855-8, through the extreme southern portion of the State, I shall hope to give the reader a view of the subject from a new and original standpoint. In placing this series of sketches before the public, of course I must say something about the way the war started.

Since the close of the first and greatest war with the Seminoles, there had been two outbreaks—one in 1849, and the other in 1855. This last war is the one with which we now have to deal, and according to the most authentic ac-

counts, the trouble began on the morning of December 24th, by the wounding of Lieutenant Hartsoff and his men, by Billy Bowlegs.

Lieutenant Hartsoff was a civil engineer, who had been establishing some land-lines, near the border of the Big Cypress, in Fort Simon Drum Prairie. Hartsoff and his corps of assistants were encamped near a small body of water known as Bonnet Pond. Bowlegs had a garden in the Big Cypress, about two miles away. (This Indian was a noted chief among the Seminoles, and stood at the head of the whole tribe. He was a short, powerfully built man, but his physical endowments were insignificant in comparison with those of Saffaj-eehojee, his lieutenant and "right-bower." This Indian was a "show" in himself.) Among other products of this garden were some magnificent banana plants, which were the delight and solace of the chief's heart. He had reared them with parental care, until they were fully fifteen feet high, and he was jealous of his darlings.

But some of Hartsoff's men (like a good many of us) couldn't keep their hands off the beauties, and when Bowlegs came through the early mist, bathing his stalwart ankles in the dew, one morning, coming to his beloved garden, he was surprised and shocked to find the banana plants, once so tall and graceful, with leaves torn to shreds, and some of the stalks broken short off at the ground by some ruthless hand. Bowlegs knew at once where the blame lay.

Going to Hartsoff's camp, he accused the men of the outrage. They admitted it with the utmost coolness, but signified no intention of making good the loss, nor of giving any cause for their actions, other than that they wanted to see how "Old Billy would cut up." When Billy saw that remonstrance and complaint were useless, he went back and summoned his braves together. "Hyeefus! Eestahotka holiwaugus!" was the war-cry. Early next morning Lieutenant Hartsoff and his men were fired upon, and some of them were wounded.

Hartsoff ran into the water, but began emptying his

Colt's revolver at the Indians, who were soon dismayed by the strange weapon, which did not seem to require loading, but which seemed to them to be able to kill every one of them, while they were loading their rifles. It was the first revolver they had seen, and Bowlegs promised to cease firing if Hartsoff would come out and show his pistol. This ruse did not succeed, and the Indians retreated.

Hartsoff was badly wounded, but rallied his strength and wrote an account of the affair, to be used in case of his death. Meanwhile one of the men (also wounded) set out for Fort Myers, sixty miles away, to convey the news of the outbreak. In as short a time as possible a company was dispatched to the scene of the fray, and when they got there they found Hartsoff still alive, but in a critical condition. He was carried to Fort Myers together with his comrades who had been wounded, and taken care of in the hospital there.

War was then proclaimed against the Seminole Indians of Florida. Like a flash of electricity the news encircled and permeated the South, and Billy Bowlegs became the target of every pioneer's rifle. I enlisted in 1856, and did what I could for the honor and glory of my native State. But my life was rather a tame one for the first year of my service. The next year was more eventful.

In the early part of July, 1857, a boat company, consisting of forty-five men, commanded by Capt. Jacob Mickler, were mustered into the volunteer service of the United States, at Fort Brooke, now called Tampa. Nine metallic boats had been provided, for transporting the soldiers down the Kissimmee river, while hunting the Seminole Indians. I was mustered in with this company, and cast my lot with those who were preparing to enter that great, unknown wilderness—the Everglades.

The boats were hauled on wagons to Fort Kissimmee, a distance of eighty-five miles. Nothing of importance occurred on this trip, beyond the killing of several deer and turkeys, which furnished us with an abundance of food. Striking the river at Fort Kissimmee, we encamped for the

night. Strange to say, we were not annoyed in the least by mosquitoes, although it was near mid-summer. Next morning we launched our boats on the waters of the Kissimmee, and steered away into the wild passes of the river, toward the great Okeechobee lake.

Having the current in our favor, we proceeded on our way without any difficulty. I had heard of alligators—of rusty old monsters, equal to trees in size, and vicious as wolves—but I was not prepared for the sight that met my gaze, as our boats passed down the Kissimmee. To say that they were lying on the banks as thick as leaves in an autumn forest, would be scarcely an exaggeration. As to their size, I hardly wish to attempt to give you a description. They were quietly sleeping on the banks, as we went along, and as the plashing of our oars waked them, they plunged into the water ahead of us, almost capsizing our boats at times. As the report of a gun at that time would have very likely had the effect of alarming the sagacious redskins, our captain allowed no one to shoot at the alligators.

After traveling some twenty-five miles, we landed at Fort Bassinger and struck camp for the night. We had been plentifully supplied with mosquito nets, but found that we could dispense with them at this place entirely. The width of the river here was about seventy yards, and so crooked that one might travel in a boat five or six miles, land, and walk half a mile, and come to the point he started from. The land at Fort Bassinger was found to be rich hammock, covered with a heavy growth of live oak and cabbage palm. Early in the morning we proceeded on our way and reached the lake about noon.

The river, here, ran between two banks of almost impenetrable saw-grass, through which it emptied into the Okeechobee lake. As we rode out on the bosom of this inland sea, the view reminded us of the ocean, for the waters stretched away, until they were lost in the horizon beyond. Myriads of white and blue herons and water-turkeys were flying to and fro, or feeding among the rushes and lily pads.

About two miles from the mouth of the river, we found a beautiful camping spot. It was a hammock which extended to the water's edge, and was bordered by a nice, white, sandy beach. Under a canopy of overhanging oak and rubber-tree boughs, we pitched our tents, and enjoyed a substantial dinner. Our men had caught some fine bass, and, with a dessert of papaws and rubber-tree fruit, we fared sumptuously. The fruit of the Ficus elasticus, or rubber-tree, is somewhat similar in size and flavor to an ordinary Marseilles fig. The papaw, we found growing on a small tree, about ten feet in height, the fruit adhering closely to the trunk. The pulp has a sweet, aromatic taste, reminding one of a muskmelon.

Our headquarters were established here for the time being, and arrangements made for a week's encampment. All hands were hearty and eager for "business," now that we had entered the stronghold of the enemy.

Next morning, bright and early, Captain Mickler selected thirty men. Leaving the others to guard the camps, and, taking six of the boats our little fleet steered toward an island about four miles distant. Here, we confidently expected to capture a lot of Indians. We could not make much headway, on account of large masses of floating water-lettuce. Striking open water again, we proceeded about half a mile, and came to the mouth of a small creek, which was overhung with cypress branches, so low that it was with difficulty that we could pass under them. Here we found unmistakable signs of Indian encampments; shells of freshly roasted water-terrapins (commonly called "cooters") were found, and many tracks were to be seen, showing that large numbers of the red savages had been in that locality a short time before.

Proceeding a little farther, we discovered a large canoe, which, as we afterward learned, had been captured from a company of regulars who had been cruising on the lake. A trail led from this spot to an island in the saw-grass, about a mile distant. At this juncture our captain climbed a tree, for

the purpose of taking a view of the surroundings. As his eye fell on the island, he exclaimed:

"Boys, there are Indians on that island, and no mistake, for the leaves of the oak trees over there look as though they had been blackened with smoke. We will swoop down on the rascals and 'gather them in.'"

He hastened down the tree and picked out a squad of about seven men, and ordered them to guard the boats. The rest of us then followed the trail that led to the hiding-place of the Indians. The saw-grass was much higher than our heads, and the ground very boggy; we had to step from one fern "tussock" to another in order to keep above water; and any one failing to gain a foothold, was precipitated up to his waist in the mud.

When we had advanced to within a few hundred yards of our destination, Captain Mickler ordered a halt, and, in a low voice, issued commands to one of the party to take charge of a company of ten men and proceed to the north side of the island, and to remain there until orders were given for a final charge. The man to whom this maneuver was intrusted, was a daring and fearless Southerner, named James Cook, who had given unmistakable proofs of intrepidity and courage, during the short time he had been with us. In such a foe as this, the wily savage might find their most daring young warriors baffled, both in strategy and combat.

We stood there in the saw-grass, impatiently waiting for the final moment, while Cook and his men silently glided through the marsh toward the island.

CHAPTER II

OUR FIRST CAPTURE OF INDIANS—AN UGLY CUSTOMER.

Our captain, in order to allow Cook and his men to reach their destination and get in readiness for the charge, waited a few minutes, and then ordered an advance. When we were within fifty yards of the island, the sound of an axe was heard, and a moment afterward, the keen crack of a rifle broke on our ears.

Hastening forward, we found the doughty James Cook standing guard over a half-a-dozen squaws and "pickaninnies." He had surprised and captured them, as they were preparing dinner. After hanging the venison pots over the fire, they had taken a rest, and were lounging on a rude scaffolding of poles and cabbage-palm leaves. Some of the squaws attempted to escape by hiding in the tall saw-grass, but a few shots from our rifles soon brought them to terms, and it was an easy matter to find and capture them. The women, although badly frightened, remained sullen and silent, but the "pickanninies" (children) set up a howl that would have done credit to a horde of young hyenas. The poor creatures had been fearfully cut and lacerated, by running through the tall saw-grass, and their faces were, as Jim Cook said, "a reg'lar sight."

Jim Cook seemed to be anxious to give them an adequate idea of his wrath toward them, and held his rifle in alarmingly close proximity to their heads, while he shouted:

"Jist budge a quarter of a inch, will you? Yah triflin,' des-peekable low-lived critters! Open them 'are long yappin'

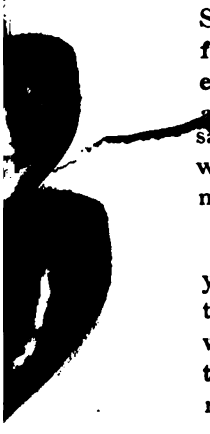
jaws o' yourn jist one time, and I wisher may die if I don't knock ye deader'n Hec."

And a sulphurous light gleamed in his eye that meant business. The squaws, disregarding his last injunction, began jabbering a mixture of English and Seminole; one old squaw kept repeating:

"White man holiwaugus, (no good); umcah, loxi-dokschay—lie heap. Umcah; eesta-hotka—white man no hurt hopeta (squaw) eesta-chatta."

From this highly intelligent discourse, we inferred that the dusky ladies were trying to make negotiations for peace. The irate Jim would fain have made them feel the weight of his strong right arm, but as he was no coward, he restrained himself, and was content with the remark that, even if they were "pesky, low-down Seminole Injins," they were women, and he never could "strike a 'ummern."

Hung over the fire were some brass kettles, in which they had been cooking dinner, when we surprised them. Near by were several baskets woven of wire-grass, full of huckleberries and other wild fruits. Hanging in one of the wig-wams, were two chiefs' costumes, richly embroidered with beads. Some breast-plates, hammered out of silver dollars, were also found. We made a dash for these, and I was fortunate enough to secure one of these costumes. This consisted of a sort of a waistcoat, a pair of leggings and moccasins, and a sash. Each article was covered with elaborate designs, worked in beads and silk, representing birds, fishes, etc., and must have cost much time and patience.



We were again put on our guard by the sound of defiant yells, coming from the distance, and put ourselves in readiness to withstand an attack, as it was natural to suppose that the warriors, who had left this camp, were returning, and that they would be ready for battle when they came. They did not put in an appearance, however, during our stay.

This island was circular in shape, and contained about an acre. It was surrounded by a belt of timber, which com

pletely hid its occupants from the sight of enemies approaching from the outside. Within this circle, all the timber, with the exception of a few large live oaks and cabbage-palms, had been cleared away, and the ground was in a high state of cultivation. Fine corn, beans, and pumpkins were growing underneath the live oaks; the vines had climbed the trees, and the immense pumpkins hung from the limbs, presenting a strange appearance.

Among our prisoners was a boy about twelve years of age, named E-chepko, whose duty it had been to post himself in a tall hackberry tree, and give warning, in case of the approach of an enemy. A feeling of complete security had caused him to neglect his duty on this eventful morning, and a surprise and capture was the result.

After satisfying ourselves that the warriors were not coming, as we had expected, preparations were made to carry our prisoners to the boats. They were all easily managed, except one old squaw, who manifested a decided reluctance in accepting our escort. In the words of an old song:

"She couldn't and she wouldn't, and she shouldn't come at all."

James Cook, who took her in charge, then said, "Come on, old gal, and let's go to the boats." As she did not accept Jim's proffered arm, that worthy caught her by the shoulder, and attempted to push her forward. In vain. She set her foot firmly on the soil, and resisted all attempts to move her. As a final stroke, she laid herself flat on the ground, and, rolling her savage red eye around, scowled defiantly at Jim. He flew into a rage at this, and, whipping out his bowie-knife, he drew it lightly across her throat; then, with an oath that would have made an alligator turn pale, he gave her to understand what would be her portion if she didn't submit.

"Don't kyarve the old critter," exclaimed a soldier, in a compassionate tone. "If ye kill 'er, we haint agwine to git that two hundred and fifty from the Guv'ment. No; jist wait till the 'thorities gits hold of 'er; let 'er jibe if ye kin, old boy, till we can git 'er into camp. We'll help ye tote 'er ef we can't git 'er along nary nother way."

She was "taken up tenderly, lifted with care," by four men, who had been detailed to that duty. Two seized her arms, and the other two laid hold of her feet; still, it was no easy task to carry the vicious old creature. She snapped like a turtle, and grunted like an angry sow.

Just as we started back with our captives, we were startled by the report of a gun, in the direction of the men who had been left at the boats. When we arrived at that place, it was discovered that an accident had happened. One of the men was floundering around in the mud at a great rate, and groaning loudly. It appeared that one of the men had handled his rifle carelessly, and the result of it was that he had wounded the man in front of him. The man, whose name was Turnipseed, received a severe flesh-wound, which caused him much pain, but there was no danger to be apprehended. Beyond a slight halt in his gait, and an inability to rest otherwise than by lying on his side, he did not give much evidence of having been the first to fall on the flattle-field. In a week he was as spry as any of us, but I believe he selected somebody else to walk behind him.

We placed our dusky prisoners in the boats, and steered for camp. Close watch was kept over them lest one should escape, for each represented two hundred and fifty dollars. We had fifteen of them, which amounted, in all, to about three thousand seven hundred dollars.

They made no demonstrations on the journey; indeed, some of the squaws became friendly and communicative, and even smiled, at intervals. The children, however, kept up a dolorous wail the entire distance. One of the girls, about ten years of age—a half-breed of Spanish and Seminole—was really pretty. She had an intelligent appearance, an olive-brown complexion, and long chestnut hair, that would have been the pride and glory of many an English girl. When we rowed out into Okeechobee one of the squaws pointed to an island far out on the bosom of the lake, which she said was the girl's birth-place. Pinnewa (the girl) was hardly less wild and untutored, than the herons and egrets that, like her,

claimed the islands and marshes for a home. She had never seen white men before, and she looked long and earnestly at the fair faces and flowing beards of our soldiers, as if she thought them very agreeable, if not handsome. And as I looked on her soft, rounded cheek—almost the tint of a ripe mango—I could not wonder that the proud-souled son of Castile had deigned to call this wild bird of the marshes his daughter.

Arriving at our camp, we assigned the prisoners to their tents, and set a watch over them. The old squaw who had caused us so much trouble had quieted down so far as to allow herself to be led from the boat without making any resistance.

When dinner was served we all sat down together—white and red—and captor and captive, with appetites sharpened by the morning's exercise, partook heartily of pork and beans, hard-tack and coffee, garnished with side-dishes of cooter and soft-shell turtle, finished up with a dessert of papaws and rubber-tree fruit.

CHAPTER III.

A DISAGREEABLE JOURNEY, AND AN ENCAMPMENT AMONG THE ALLIGATORS.

We passed that afternoon fishing and hunting. One of the men, a half-breed named Andrew Wiggins, had quite a reputation among the soldiers as a hunter. He never failed to bring in a deer, when once he got out on the war-path. In hunting this game, he had a way of uttering a peculiar call, which would decoy the unsuspecting buck within easy range of his rifle. Other of the soldiers spent the time trading rings, ear-bobs and other trinkets with squaws, for beads and moccasins. The children had fully recovered from their fright, and were rolling and tumbling in the waters of the lake.

From the squaws, we learned that the warriors belonging to their camp, were on a scouting expedition to Pease Creek, about a hundred miles distant, and that they would return within two moons. Next morning, Capt. Mickler ordered preparations for departure. The boats, which were none too commodious at first, were loaded to the gunwales. To add to our discomfiture, a heavy wind arose, when we were five miles out. The great "white-caps" appeared on the water, and I never saw larger waves on the ocean, than those were, on Lake Okeechobee. The boats rolled and pitched around in an alarming manner, and nearly every Indian was writhing in the bottom of the boats, suffering the agonies of sea-sick ness. At last, we were compelled to run into the saw-grass, to save ourselves.

The wind did not lull until night. It was then too dark to travel, and there was no land in sight; so, we were obliged

to spend the night in the boats as best we could. The children set up a howl at intervals, and the squaws industriously spanked them into silence. I had always entertained the idea that the Seminoles were an uncleanly set of creatures, but when I saw the repeated dippings the children received at the hands of the squaws, I began to think differently. The pickaninnies were held over the side of the boats, and soused up to their eyes, at least a dozen times during the journey. The little Spartans took the treatment heroically, seeming rather to enjoy it. As the boats sped along, the little fellows were let into the water, and held by one nand. It might seem as though there was some danger in this proceeding, but perhaps Jim Cook arrived at a correct view of the case, when he averred that "the faces of them there Injin squaws is so tarnation ugly that they'd skeer away the sassiest 'gator that ever growed." About ten o'clock next morning we arrived at the mouth of Fish-eating Creek, and found such a mass of floating "lettuce" ahead of us, that we could not travel any farther, by the ordinary means. It was simply impossible, to propel the boats with oars; so, we were compelled to fasten lines and tow them from the river bank. A man was left in each boat, for the purpose of steering clear of the shore. Our tow-path was covered with about six inches of green, stagnant water. Millions of deer-flies swarmed around us, and their keen bites, which we could not hinder, on account of pulling on the tow-line, made us envy the fortunate quadrupeds, who are furnished with tails, to defend themselves from the murderous attacks of these insects.

Suddenly a sound of curses, loud and deep, broke on my ears. Some of the men were stamping around like mad, and began tearing off their boots. Soon an intolerable itching commenced on my feet, and I learned the cause of the men's strange actions. We came to a halt, and in a few moments the whole company were bare-foooted, and scratching and pawing their feet as if for dear life. But the more we scratched and pawed, the more unbearable became the itching, until, at last, our feet felt as if they were on fire. We all recognized the importance of getting out of

that water, and Jim Cook gave such heroic jumps that one might have supposed that he was trying to perform the trick of keeping both feet out of the water at once.

To repeat all of his remarks on this occasion would be rather out of place here. His contortions were fearful to look upon, and his face was wreathed in a fiendish grin of mingled pain and satisfaction, as he rubbed and scrubbed his prurient heels. At last, he yelled: "Pards, I'll be everlastin'ly dad-blamed if these 'ere * * varmints ain't eatin' me bodaciously up! Let's quit scratchin' and pole on; scratchin' don't do no good—hit only makes'em wuss."

Jim was right; the trouble was greatly increased by scratching. Putting on our boots, we were soon out of the water, when the itching ceased. The irritation must have been caused by some poisonous substance in the water, although Jim stoutly contended that it was "varmints," and swore that he saw the little creatures swimming around in the water.

We arrived at Fort Center near sunset. Here, we found a company of regulars, who welcomed us heartily, and were much surprised at our success. The Indians seemed grateful for an opportunity to stretch themselves out on the dry ground once more, and we were soon seated around the camp-fire, chatting of our adventures and drinking strong, black coffee, such as only soldiers can make.

Our captives were placed in comfortable quarters, and we spread our blankets near the stream, and lay down to sleep, with no other covering than the sky above us. It was midsummer, and the air was warm and sultry, but we were not troubled with mosquitoes. A million frogs were singing, groaning and croaking around us, but they could only lull us to sleep. We had worked hard all day at the oars, and were soon snoring like good fellows.

While we were sleeping there by the side of the stream, we did not dream of the red enemy, in whose land we were encamping, nor did we imagine that the dark bodies of huge

alligators were gliding around us. No; the "soldier's dream of home" brought us visions of wives and mothers, rejoicing at our return from the perilous battle-field. But the slimy monsters were creeping around us, for what purpose, I cannot say; perhaps they were trying to discover what strange being had come among them; maybe, they were seeking companionship, although I never knew that the alligator possessed such an inclination for human society. The probable truth of the matter is, that the huge saurians were searching for bits of meat and bread, lying around the camp. It is said that the alligator is very fond of young Seminoles, and has been known to watch around where the pickaninnies were bathing, for the purpose of seizing and caressing the little red cherubs. One peculiar feature of that kind of business is that the little Indians are never seen any more. Where they go, nobody can tell.

Possibly, we never would have known anything about the scaly rascals being in our camp, if one of the men had not made the discovery. This man, while asleep, threw his arm outward, and his hand alighted on something so rough, cold and slimy that he instantly awoke. He felt a fetid breath blowing on him, and, turning his head, he looked right into the jaws of a large alligator, whose cold gray eyes glittered in the moonlight.

CHAPTER IV.

ANOTHER VOYAGE, AND ANOTHER DISCOVERY.

Figuratively, the soldier was frozen stiff with horror for a moment, but when he recovered, he opened his mouth to its utmost capacity, and gave such a yell that every man in camp was awakened. We all jumped to our feet and clutched our guns, for we thought the red devils were upon us. Ed. Marr, the man whose shout of terror had awakened us, endeavored to tell us what the trouble was, but some of the men were running wildly around exclaiming:

"Where are they? Where are the Indians?" and it was some time before everything was quiet again. The alligators, frightened by the noise, dropped into the stream and easily escaped.

In the morning, the captain of the regulars furnished us with a wagon for the purpose of carrying our captives to Fort Myers, where the Indian agent was stationed. Fifteen men were detailed as a guard, and I was one of the number. We set out early, and camped near Fort Denaud that night. A heavy rain set in about the middle of the afternoon and continued all night. We had no tents, and were obliged to lie down and endure the pelting storm. I lay down by a pine log, covered my face with my hat, and took a rather moist nap. About two o'clock in the morning I waked up, and could not move a limb, and it was several minutes before I could turn my head. As soon as I could get up, I collected a few light-wood knots and built a fire. We were anxious to

reach Fort Myers, and bent all our energies to the task of getting there that day.

At noon we camped near a scrub-hammock. Andrew Wiggins, of course, had to take his gun and scour the woods in search of game. He crept softly as a tiger through the desert rosemary and slanting spruce of the scrub, and kept his eagle eye on the lookout for deer and turkey. He glided along on his hands and knees, and then stopped and listened, at intervals. Finally he heard strange sounds coming from a thicket a few hundred yards distant. Springing to his feet he ran to the spot, and as he came nearer the terrific growl of the black bear and the fierce scream of the panther broke on his ear. He saw the bear standing on his haunches, and the panther crouching near by; in an instant the panther sprang at her enemy, and a stream of blood began trickling down the bear's side. With an intermission of only a few moments the panther renewed the attack, and the bear reached out eagerly for his adversary, who was just a little too quick for him. At last the panther made a false move, and the bear clasped him in his hideous embrace. With one sweep of a paw, he disemboweled his foe, who lay gasping in the last throes of death. The bear's victory was short-lived, however, for Wiggins laid him low with a bullet from his rifle. Wiggins said that the combatants had beaten down nearly half an acre of the scrub.

The triumphant hunter skinned the bear, and dexterously severing a hind quarter, shouldered it and carried it into camp. We were pleased at the prospect of a "bait" of jerked bear, but our joy was nothing compared to that of the Indian squaws, who reared themselves up in the wagon and espied Wiggins with the precious freight, coming in the distance. With nostrils extended, and teeth unsheathed, they scented the feast "from afar off."

"Easta-hotka, get lokasee!" was their rapturous exclamation. "Lokasee" is the Seminole word for bear, and among their pigeon-like chattering, the word was many times repeated. "Umcah, lokasee good, ojus; cook 'em quick; eat littlum raw."

They wished us to understand that we need not wait to cook it, as far as they were concerned; that they were not so fastidious as the easta-hotka," or white man. We set some stakes over the fire and began broiling huge slices of meat, while some of the n.en were sent along with Wiggins for the purpose of carrying back the remainder of the bear. After a glorious feast we continued our journey, and at noon the next day we reached Fort Myers. Here we found the agent and transferred the prisoners to him. The squaws had expected to meet the warriors at this place, and began wailing piteously when they found themselves disappointed. They bade us a tearful good-by, and shook hands with us in a very friendly manner. But they were inconsolable for the loss of their warriors. We tried to encourage and cheer them by telling them that the eesta-chattas would soon cheer them with their presence. When we left they were wandering to and fro, crying together like children.

Before long we joined our comrades at the camp on Fish-Eating creek, and together we went on another Indian chase.

This time we bent our course to the east side of Lake Okeechobee, and searched closely every hammock as we went along, for our "blood was up," and nothing but another wholesale capture of Indians would satisfy us.

We made our boats fly through the water as fast as oars and blankets (for sails) could make them go. Jim Cook commanded one of the boats, and every few minutes went ashore and examined the land for "Injin signs." Finally his keen eye fell upon tracks, in the sand of the beach. With a smothered chuckle of satisfaction, he signalled the good news to Captain Mickler, who immediately steered for the shore Our captain, after examining the tracks, ordered the men back to the boats, and to Jim's disappointment, the journey was resumed. After we had gone a mile or more, we encountered something else which attracted our attention. I was lounging at the bow of the front boat, and, of course, was able to make discoveries before the others. Underneath a

group of custard-apple trees, which were growing in the water near the beach, I saw a blue rag fluttering in the breeze, and called Captain Mickler's attention to it. Immediately afterward I saw a canoe tied up close to the shore. Our captain ordered the boat to be put about, and we pulled for the shore. Before we reached the land a squaw appeared and waded out to the end of the canoe above mentioned, and hung a shot-bag over the stern of the boat. This was the truce of peace, and was understood by all of us.

When we landed, all of us had our arms in readiness for battle, and some of the men were eager for the fray. The squaw was exceedingly grim and uncommunicative. She utterly refused to tell where her better half was, and perhaps things would have gone a little rough with her if it had not been for a discovery made by one of the men. While hunting in the dry grass and thickets near the water, he espied a dark form, lying half-hidden in a clump of custard-apple bushes. Beckoning one of the men to him, the two crept silently upon the unsuspecting redskin.

CHAPTER V.

A FLORIDA DELICACY—NOVEL METHOD OF SECURING GAME.

The Indian, who had been sleeping "the sleep of the just," and lay wrapped in dreams while his captors were stealing upon him, was rudely awakened by an unceremonious "laying on of hands." He turned his affrighted gaze toward the men, and, seeing there was no hope of escape, a diplomatic grin overspread his features, and he rose to his feet, held out his hand, saying: "How do? How you do?"

"Well, we're a-doin' first rate, and you'd better thank goodness that you're a doin' at all. What's your name, anyhow, you dirty, half-made sneakin' whelp?"

"My name Tommie; me Seminole, good, too much. Me not hurt eesta-hotka—me good, ojus, too much, umcah."

"Well, Tommie," said Captain Mickler, "where were you going?"

"Goin' to coontee-sassahollober."

"Where are all the other Indians."

"All gone to coontee-sassahollober," he repeated, pointing in the direction of the Big Cypress. He seemed willing to give us information about his people, and did not exhibit any of that surly, taciturn disposition that was shown by the majority of the Indians. His wife, however, had quite a serious cast of countenance, and kept her little boy close by

her side, occasionally speaking to him in a low voice, in Seminole. When asked about the number of Indians in the neighborhood, he replied by shaking his head and saying, "Sookkus-chay," which is the Indian word for departing.

We noticed some pots hanging over the fire, and upon examining one, we found that it contained "cabbage permeeter." The fragrant odor that arose thereform told us that it was a luxury never to be forgotten when once tasted. The manner of procuring the "permeeter" is as follows: A thrifty young cabbage-palm tree is selected, and with an ax, the leaf-stems are cut off. About the spot, on the trunk of the palm tree, where the leaf-stems begin to whither and die, is where the chopping must be done. If it is cut lower than this, the bitter, woody part will be included, and if higher, the tender germinal bud will be lost, or sliced up in such a manner as to be hardly fit for food. Having felled the trunk, the sheathing leaf-stems are separated, and soon the snow-white "bud" is visible. This, in a thrifty specimen, is about eighteen inches long, four inches in diameter, and cylindrical, with a bulge at the base. It is so brittle that a large piece of it can be broken up easily, with the fingers; is as smooth as glass, and whiter than ivory. When raw, the bud resembles a green chestnut in taste. But let it once be properly cooked; stewed with ham or breakfast bacon, and served with cream and butter, with a sprinkling of pepper—oysters, green corn and pumpkin pie sink into insignificance. A lingering, "soul-filling, hunger-killing" sensation is experienced, as the gastronomist takes his first bite. I am speaking in earnest, when I say that palmetto cabbage is the raciest, most toothsome dish that ever came to my acquaintance since I was old enough to know what it was. Even as I write, I long to toss my pen aside and rush into the wild hammocks, where the coveted delicacy grows in abundance.

The other pot contained "comptie." I cannot well tell just what that is, for I don't think there is anything like it growing in the North. It is the root of a plant that is found in immense quantities in South Florida. The roots are macerated in a mortar, and a fine quality of flour is obtained, which

contains a very large percentage of starch. When cooked it resembles arrowroot in taste and character. It is used very extensively as a breadstuff among the Indians, who call it "soff-kee," after it is cooked.

We also noticed a number of large birds called "cormorants" in that region, which had been placed so as to bro il over the fire. Seeing that the Indian had no lock on his gun, and of course could not use it, Captain Mickler asked him how he got the birds.

"Hannah," he answered, pointing at his wife, "go rookery; take stick—knock 'em down."

It was true. The woman, disregarding all accepted rules of sportsmanship, took a stout cypress limb, and, creeping under the trees where the birds had selected a roost, commenced such a fierce onslaught on them that but few of the luckless creatures escaped.

About this time, our captain ordered the men to chop the Indian canoe to pieces. The owners looked on with rueful countenance, but said nothing.

The myriads of custard-apple trees around us were loaded with fruit, but none of it was ripe. Captain Mickler picked one of them, and asked Tommie if it was fit to eat.

"No good, holiwaugus. Tomollow, ripe; good, too much."

He meant that next day it would ripen. The fruit is about as large as a quince. A grove of custard-apple trees, full of fruit, will perfume the air for half a mile around.

We manned our boats and left with our captives, steering our course toward the south end of Lake Okeechobee. After traveling five miles, we reached that point and began looking for an outlet into the Everglades, but without success. We were bounded by a high, almost impenetrable wall of saw-grass, through which the water from the lake oozed its way to the Everglades.

We went on about three miles farther, and reached an Indian town. Here we saw several palmetto huts, and the place looked as if it had been deserted for many years. In answer to a question as to who lived there, Tommie said:

"Miccosukie; no good—thief, too much."

Miccosukie was the name of a tribe who had lived apart from other tribes, plundering their neighbors and murdering women and children. Tommie told some fearful tales of their depredations.

Next day we landed on Observation Island, and in my next chapter I will tell my readers what we saw there.

CHAPTER VI.

A MAN TRIES CHICKEN-HAWK AS AN ARTICLE OF FOOD, WITHOUT SUCCESS—WE REACH THE EVERGLADES.

Observation Island is about three-fourths of a mile in length, and one-fourth of a mile wide. It has a hard, white sandy beach, and is known as a favorite resort for turtles.

On landing at the island, a curious sight met our eyes. The ground was literally paved with turtles and cooters, some of which were industriously digging in the sand, forming a place in which to deposit their eggs. The fierce, gray-eyed soft-shell, the bright, yellow-striped cooter, and his odoriferous companion, the "alligator turtle," were dwelling together in unity, but there was consternation among them as we came up; which was plain, from their frantic scrambles toward the water.

We hurried ashore, and commenced a raid on the unfortunate reptiles. I secured half-a-dozen without accident, and retired with my struggling, kicking captives to a shady spot, where I made them secure with a few strips of tough bark. One man, a long, lean Tar-heel, named Turnipseed, was not so fortunate. While wrestling with a giant soft-shell turtle, the vicious chelonian grabbed him by the thumb and held on like "grim death." There is a superstition prevalent among some people, to the effect that a turtle will not relax his hold "until it thunders." Perhaps Turnipseed had began to have that opinion, for the soft-shell tightened his grip, and, drawing in his head, plunged forward so suddenly

that the Tar-heel was obliged to move his arm accordingly, to save his thumb. The turtle continued to plunge and rear, but there is a limit to human endurance. Notwithstanding his peculiar name, there was nothing small about Mr. Turnipseed. He didn't swear, and tear around, nor curse, nor wish that the vicious reptile was in the country, of which they say the pepper is a native. No, he simply held up the turtle by his thumb, and waiting until its neck was sufficiently extended, made a skillful swipe of his knife, and the body fell to the ground. The head, however, remained, and Mr. T. had to practice some surgery before he finally got his thumb free.

We considered we had plenty, when two dozen of the snapping turtles were thrown into the boats. On close inspection, we failed to discover any signs of Indians, and of course our only alternative was to return to the mainland.

When we arrived at the camp, we found some little excitement among the soldiers. It appeared that one of the men had shot a chicken-hawk, and insisted upon having it for his dinner, despite the remonstrances of the men. Not long after he had finished his meal. he complained of intense pain in the stomach. When we arrived, he was almost delirious, and the physician of the camp was doing his best to alleviate the man's sufferings.

Our captive, Tommie, seemed much concerned about the man's condition, and repeatedly begged Dr. Oliver to let him try a cure. The doctor at last consented, and Tommie dispatched his squaw, Hannah, to the woods for the purpose of gathering roots and herbs. He then took the man's hands in his own, and repeated a strange jargon of unintelligible sounds, and passed his hands over the man's face. The voodoo operations had no effect, and when Hannah returned with an apron full of leaves, Tommie bruised them together in his hands, and then put them in the man's ears and mouth, at the same time repeating the gibberish of a voodoo. All to no purpose. After a few struggles, the man lay still in death before us.

Tommie seemed greatly affected at the unfortunate termination of his case, and tried to explain to us that the moon's phase was unfavorable to a cure. We buried our comrade under a rubber-tree, and inscribed the name in the bark, over his head, which, no doubt, can be seen until this day, perhaps partly effaced by the growth of the tree.

Next morning, we set out on the journey to Fort Myers, and after two days of rowing on the Caloosahatchie, we arrived at our destination, and delivered Tommie, Hannah and the boy to the Indian agent.

After securing a receipt for the Indians, Captain Mickler was furnished with a guide, an old Spaniard, named Phillippi, and an Indian squaw, called Polly, a former wife of Chi-ee, a famous Seminole chief.

We again impelled our boats down the Caloosahatchie, and arrived at Punta Rassa, where the river empties into the Gulf of Mexico. At that point we entered the salt water, and cruised along the coast, southward. Mullet and pompino were our chief diet, and the men, who had grown tired of fresh-water fish, feasted on these products of the "briny deep" with unlimited zest.

Sanibel Island. off Punta Rassa, is famous for its wild hogs and deer. Before leaving for Shark river, some of the men went across to that island and began chasing the long-toothed boars. Andrew Wiggins was one of the party, and proposed to show the others just how easy he could lay the vicious game low. They "jumped" a herd of the swine, digging in a small pond, in search of "wampee," an aquatic plant, something on the order of Arum, or Indian turnip. Andrew Wiggins unceremoniously interrupted their meal by firing among them, and he wounded one so badly that it set up a fearful scream. One old boar became greatly enraged at this, and with a blood-curdling "gosh-gosh," and rattling grunt, trotted straight for Wiggins, who turned and ran for a tree. It was wise for him to do so, for the angry animal was right at his heels, when he reached a small oak tree. With the agility of a squirrel he climbed the tree, and the boar, finding

himself disappointed, commenced rooting at the foot of the oak. Whether the boar would ultimately have overturned the sapling, I cannot say, but as soon as Wiggins could get a firm foothold, he stopped the tunnelling operations with a bullet from his rifle. We killed several fine young shoats, and carried them to the boats.

Shark River flows into the Gulf about eighty miles south of Punta Rassa, and after traveling two days, we reached the mouth of the river. Proceeding up this stream eight miles we selected a camp, amid the mangrove trees. The ground was dry, although not more than three feet above the water. Roaming around the forest that evening, I found a tree covered with grape-vines, on which hung the finest grapes I ever saw. They were larger than muscadines, covered with a deep purple bloom, and so juicy and rich that they were near bursting. Neither before, nor since, have I ever seen such magnificent grapes.

Next day we entered the Everglades. Mangrove forests were behind us; and before us, as far as the eye could reach, could be seen nothing but an ocean of saw-grass, dotted with small islands, on which a few cocoa-plum and myrtle trees were growing.

Many people who have heard of the Everglades all their lives, have no idea of what the country looks like. Some imagine it to be a beautiful forest, where tropical birds fly through fruit-laden trees; others imagine that it is an El Dorado, where one is almost sure to find gold or jewels. I understand that one prominent writer, and citizen of Florida, pretending to write from experience, says that the Everglades will yet become the greatest winter resort in Florida. He speaks of "high, rolling land, wild orange groves, and a rich soil and healthy climate, which must some day gain for it a world-wide reputation as a resort for invalids." I can scarcely conceive of a more shameless misrepresentation. In my next chapter I will give a description of the Everglades, which I am ready to substantiate in every particular.

CHAPTER VII.

A JOURNEY ACROSS THE EVERGLADES, AND A PROMISE OF AN ADVENTURE.

Standing on the edge of the Everglades, we could look each way, and discern the line of demarkation as plainly as ever was seen in a field or lake. The confines of the great morass ran in almost a straight line north and south, and melted away into the dim distance on each side of us. At our feet lay a warm, reeking mass of water and decaying vegetation, and around us stood myrtle and cocoa-plum trees, laden with fruit. An intense silence prevaded the whole scene. Far ahead of us we could see the white heron and the roseate spoonbill, expanding their wings in the warm sunlight, but they uttered no sound. A solitary flamingo spread his scarlet pinions on the air, and slowly wended his flight to the south, at last looking like a blazing red star, sinking into the horizon of the saw-grass and myrtle.

The water was less than six inches deep, and we could easily foresee that the journey would be a difficult one, for the boats would have to be drawn over the fields of saw-grass by main strength.

Captain Mickler ordered that two of the largest boats be sent back, as they were too large to be hauled along like the other boats. Accordingly, William Mickler, the captain's brother, assumed the task of taking them back, and we prepared for the journey across the Everglades. All of us entered the water with the exception of Polly, the Indian squaw, who sat in the prow of the foremost boat. Five men were assigned to each boat; one behind and two on each side,

and we had all we could do to push them along, although they contained nothing but rations, ammunition and guns. Polly, who was to act as our guide, gave her directions to Phillippi, who interpreted them to us in English. She had crossed the Everglades eighteen years before, and yet she knew the way just as well as if she had made the trip a hundred times. No mariner's compass could have guided us across this trackless waste with more precision than did this hideous old hag.

Occasionally Captain Mickler would order a halt, and go to an island, climb a cocoa-plum tree, and take a long look at the surrounding country. As far as he could see there was no variation of the monotonous scenery. On examining these islands we found that they were only a few inches above the water, and the soil seemed to consist of rotten limestone, covered with a thin, hard crust, which broke through as we walked upon it. Underneath was a whitish, calcareous, ill-smelling soil, mixed with shells. But the cocoa-plum trees which grew in such numbers on every island, were a boon to us. There are two varieties—the black and the white cocoa—and the fruit is about the size of a green-gage plum. The pulp is very sweet and good, and very refreshing. After the pulp has been eaten, the seed is cracked, and inside is found a substance that resembles chocolate very closely, both in taste and appearance. It is claimed that the seed possesses many properties of Erythroxylon coca. One thing I am sure of is, that eating the seeds seemed to enable one to do a greater amount of labor without fatigue, than was possible before.

Occasionally we crossed the little rills trickling their way sluggishly toward the south. These little streams were hardly ever more than six feet across and contained a few species of swamp fish. The water was not more than a foot deep and the current was scarcely discernable.

Strange to say, we saw no alligators or snakes on this journey, nor the slightest trace of any reptile except an occasional cooter. At sunset we were weary indeed,

although we had traversed a distance of only twelve miles. Behind us lay the long, winding path made by our boats, through the saw-grass. Our course was toward the Miami, on the Atlantic coast—about east-northeast. At night we went on to an island, where the ground was a little dry, and prepared for the night. The myrtle, which grows in such abundance on these islands, is very brittle, and we had no difficulty in preparing couches of the fragrant boughs. We built a fire of the dry, dead branches, and were soon comfortably seated around a smoking supper, making ourselves just as merry as if we were at home, and not forced to roam through one of the most desolate deserts known to mortal man.

When we retired to rest on our couches of sweet myrtle boughs, sleep came to us on swift wings. Not a mosquito nor sand-fly appeared to keep us awake, and apparently, we just pressed the couches, and then opened our eyes to the rising sun. Never did I sleep more perfectly and refreshingly. I cannot say whether this was owing to the cocoa-plum seeds I had eaten, or not.

It is my honest opinion that we never could have gone a mile into the Everglades, without the aid of the boats, for the soil was so soft and boggy, that as soon as we relaxed our hold on the boats we sank above our knees. Nobody knows how much deeper we would have sunk. All the hardships I had ever endured were nothing, compared to this. Very often we leaned over in the boats, thoroughly exhausted, by our exertions. It was an almost superhuman task to shove the boats along, and when we were once out of sight of dry land, the prospect was indescribably dreary—a circle of saw-grass and little islands in every direction. I think I can safely say that no human being ever did, or can, accomplish the feat of crossing the Everglades on foot and unaided.

On the second day's journey, we observed no change in the character of the surroundings. The islands ahead of us looked as if they were high and dry, and gave impressions of an earthly paradise, with their soft verdure, colored fruits and

shady trees. But when we reached them, the hallucination faded, and the stern reality was before us. Noisome weeds, growing on a low, unhealthy soil and a few cocoa-plum and custard-apple trees, covered with white-flowered vines, were all that met our disenchanted vision.

As well as I can remember, none of these islands contained more than an acre and a half of land, and eighteen inches was the greatest elevation above the water.

The weary, toiling soldiers became discouraged at the dreary prospect around them and showed signs of dissatisfaction. Like the soldiers who accompanied Columbus on his voyage of discovery, they began to express doubts as to the reliability of the guide. They at last openly declared that Polly was misleading them, and expressed an unwillingness to let the alligators and herons wrestle with their bones, in that forsaken solitude. It must be said, right here, to the lasting credit of Jim Cook, that he was prompt and effectual in quelling the incipient mutiny among the men. His iron will and straightforward and convincing dialect had the desired effect and equanimity was soon restored.

At night we had made about the same distance that we traveled the first day—twelve miles. As before, an island was our resting-place.

In the morning we resumed the journey, and it is hardly necessary to repeat that we were much discouraged at the non-appearance of land. I say "land," for, of course, we were as much "at sea," as if we were on the ocean.

Captain Mickler climbed a tree, about twenty feet high, and looked eastward. Soon he gave an exclamation of delight, and told us that we might give ourselves no uneasiness, as there was land in sight. He could discern plainly the line of timber skirting Biscayne Bay. This was about nine o'clock in the morning, and when night came, we were within eight miles of the Miami.

At last, we were going to get out of this unhallowed place. We were footsore and weary, and as we had to slake our thirst with the loathsome lime-water that oozed through the grass at our feet, we were suffering from the effects of it. Some of the men declared that one hundred dollars in gold would not tempt them to make another trip through the Everglades.

It was perhaps ten o'clock in the morning of the fourth day, when we saw something ahead of us, which caused us to halt and hurriedly "call a council of war." About two miles ahead we discerned what we supposed to be an army of Indians coming toward us.

"Well, boys," said the captain, "we are pretty well worn out, but I guess we will manage to give them a warm reception."

With silent, eager movements, the men put themselves in readiness for a tussle with the savages.

CHAPTER VIII.

WE EMERGE FROM THE EVERGLADES, AND HAVE A VERY PLEASANT TIME.

With renewed energy in our sinews, we laid hold of the boats and sent them rushing through the water. It surely looked as if we ought to be rewarded for our long, wearisome struggle, and some of the men thought that a liberal number of captives would idemnify them for their trouble.

Steadily we advanced, and as steadily did the seeming enemy approach us, until they were only half a mile distant, when, to our astonishment, we discovered that we were soon to be joined by a company of regulars, instead of the human game we had been expecting. The friendliest greetings passed between our company and that of Captain Doubleday, the commander of the regulars. In replying to questions, they answered evasively, saying that our guide would probably be more reliable than theirs. It was evident that they had been lost, and were not willing to confess it. So they fell in behind and started back with us.

After traveling two miles we came to a spot where Polly commenced an excited discussion in Seminole, with Phillippi. That old worthy said that Polly pronounced the little rivulet at our feet to be the head of the Miama river. Polly piped out in her shrill, panther-like voice:

"Sookus-hechek-opko! lokasee; ojus!"

We all understood the word "lokasee," and permission was speedily obtained to follow a bear which was running across from one island to another. The chase was a short one; the bear took refuge on an island, and was soon surrounded and killed. As we went on, the rivulet broadened and deepened so that we could launch our boats. What a relief it was! We had been forced to shove them along through the mud and grass, but now we could use the oars, and we were happy. The bear was safely lying in the bottom of the boat; the Everglades were behind us, and a prospect of rest before us. Some of the men, more sentimentally inclined, lifted their voices and sang. We were gliding over the purest, clearest water; pines, hammocks, and other familiar objects greeted our vision, and palms dipped their fern-like leaves in the crystal stream. As we rowed on, the leafy woods on each side echoed the music:

"Quickly our boats are now gliding along
Gliding along,
Gliding along;
Swiftly we're rowing in time with our song,
Rowing in time with our song.

"Forest and meadows are passing behind,
Passing behind,
Passing behind;
Odors so sweetly are borne on the wind,
Odors are borne on the wind."

In high glee we rowed into Fort Dallas, at the mouth of the Miami river. Here we saw many nice frame houses among the cocoa palm trees. The ground was high and dry, and the sea breeze was most refreshing after our sojourn through the Everglades. No better place could have been found for a camp. We stayed here two days and recruited.

The guava bushes were full of delicious fruit, and no one can say that we did not do them ample justice. Next to a peach, I think the guava is the most delightful fruit under the sun. No—I will not say that—for the guava stands without rival; it is the queen of fruits. The man that says we didn't have plenty of cocoa-nuts, makes a grand mistake. We ate them, and drank the milk, until we didn't have a very good opinion of them. One man ate so many jelly-cocoa-

nuts that he was seized with severe cramps in the stomach, and came near dying. Maybe my readers would like to know what a "jelly-cocoa-nut" is. It is nothing more nor less than a very young, unripe nut; at that stage the flesh has a jelly-like consistency, and the milk is indescribably delicious, but it is dangerous if eaten without moderation.

When the two days had passed away we were in fine condition for another journey. The jelly-cocoa-nut man had recovered, and all went merry. It did not require much time to prepare ourselves for the trip. At sunrise we set out over the waters of Biscayne Bay, toward the south. The weather was delightful, and after bidding adieu to our friends, the regulars, the cocoa-nut groves were left behind. Fine hammock skirted the beach; rubber, hackberry, saffron-plum mastic, pigeon-plum and "gumbolimbo" were among the tropical trees we saw. The fruit of a mastic tree is about the size of a plum, yellow, and has a soft, juicy pulp, with a cinnamon-like odor. It is delicious eating, but the effects are unpleasant. When too many have been eaten, the mouth becomes as sore as if the person were salivated. The saffron-plum, pigeon-plum and hackberry all bear edible fruit.

The first object of interest we came to was Gen. Harney's Punchbowl. It was about ten o'clock in the morning when we arrived at the place and landed. The bank was about twelve feet high, rocky and steep. About half way up the declivity was a spring of cold, clear water, issuing from a deep, bowl-like depression in the rock. We drank the cooling water, and ascended to the hammock, which lay beyond. (This spring was named after Gen. Harney, the famous Indian fighter.) In the hammock we came upon a lime grove that eclipsed anything I ever saw. The ground was literally paved with the fragrant, golden globes. We gathered several bushels and carried them to the boats. After another deep draught at Gen. Harney's Punch-bowl, we resumed the journey.

That night we camped at the south end of Biscayne Bay, and next day we passed through Upper and Lower Cards

Sound, into Barnes' Sound, and through Chi-ee's Cut-off, into Sadler's bay. Chi-ee's Cut-off is where the waters of Barnes' Sound connect with Sadler bay. The water was twenty-five feet deep, and clear as it well could be. Down near the bottom we could see enormous red snappers and groupers darting around, and they evidently had plenty to eat, for they paid no attention to bait. At sunset we were within five miles of Cape Sable, at a place named Saw-fish Hole. That night we discovered that there were mosquitoes in Florida, after all. But we had plenty of nets.

In the morning, after breaking fast on mullet, pompano and grouper, we shouldered guns and attacked the deer. Foremost among the hunters was Andrew Wiggins. With an unerring hand, he caused many a deer to bite the sand that day. One hunter swore that a deer came up within a few yards of him, and never flinched, as he took aim and fired. I cannot vouch for the truth of the statement, but it seemed to me as if the deer were remarkably tame.

But "graining" the tarpons was the finest sport of all. The tarpon, when full grown, is about five feet in length, and clothed in bright, silvery scales, about the size of a silver dollar. They have a habit of rising to the surface and striking the water with the tail, with such force that the blow can be heard for five or six hundred yards. "Graining the tarpon" is a sport very popular around Key West, and consists in throwing a long gig, or barbed rod, into the fish, from a boat. To the rod is fastened a long, stout line, and to that a stoppered jug is attached. The tarpon, when caught, is far too powerful to be controlled by hand; so he is allowed to plunge around at will, but the jug follows him wherever he goes, and betrays his presence. The jugs, flying across the water with such rapidity that a cloud of spray envelopes them; the excited men, bending all their strength to the oars, and the overtaking and capture of the jug, and the final landing of the shining fish, forms as animating a scene as one could well imagine. The flesh of the tarpon, while hardly so fine as that of the red snapper, is really good eating.

After graining half a dozen of the silvery monsters, we cleaned them, and proceeded to "jerk" them. As everybody knows that this means drying the meat in the sun or over a fire, I will not dwell on the particulars.

Next day we visited Cape Sable, the extreme southern point of the mainland of Florida. There are three points which compose the cape proper; East Point, Palm Point and North Cape. On Palm Point were two prodigiously tall royal-palm trees, (fully 125 feet high) which were visible as a land-mark, for many miles around. The Government authorities ordained that any one who cut these trees down, was to be fined at least five hundred dollars. Since that time, however, a storm of unwonted violence has uprooted them.

My readers have patiently followed me among the red savages, have traversed deep swamps, and finally waded through the Everglades with me, until we are lodged safely at Cape Sable. And now, my dear readers, we are preparing to set out on a seven days' scout through the Big Cypress, and we are likely to pass through some strange scenes before we rest again.

CHAPTER IX.

AMONG THE TEN THOUSAND ISLANDS.

No one who enters the border of Florida and steps into the kingdom of the orange, where everything wears such a soft, unsered hue of sempiternal spring, would imagine that the southern extremity of the State presented such a desolate, gloomy appearance. The pine-covered hills and orange-scented hammocks are metamorphosed into low, oozy points, and slimy mangrove swamps. The very cranes and herons, poised on one leg, look as mournful as the sprawling frogs about to become their prey. The croak of the water-turkey is worse than a funeral dirge, and the far-reaching note of the curlew and flamingo makes one wish to be at home.

As we left Cape Sable the prospect grew brighter. The sampson-grass gave way to hammocks bordered with mangrove forests. At night we reached Pavilion Key, and selected it as a camping spot for the night. I had heard of the great clam beds at this key, and was anxious to make the trip.

What a beautiful spot it was! The setting sun was laving its heated face in the cool Gulf far to the westward; the last ruddy rays gilded the top of the lofty mangrove trees, and already a deep twilight lay in the shadowy places. The water was clear and we could see millions of clams beneath us. As we approached the key, some of the soldiers jumped overboard (it was only knee deep) and threw hundreds of the succulent bivalves into the boat. We built a fire and soon

had a mammoth chowder ready, together with some cooter steak. Polly's eyes scintillated with suppressed joy, but when she tasted the delicious mixture, her bosom heaved, her lips parted, and lifting her withered hands toward heaven, she ejaculated:

"Good—too much!"

We "fell to" with the gusto of savages and had a glorious feast. Stories were told, jokes passed, and former griefs forgotten amid the joys of the present. But amid the hearty laughs that echoed through the twilight, there was one who maintained a deep, thoughtful silence, as if he thought the time too precious, while sitting around the chowder-pot, to waste in useless merriment. But after the feast was over, he crawled to a mangrove tree and leaned against it; throwing out his feet, and clasping his hands over his shaggy head, he gave vent to one of those laughs for which he was famous. First his mouth opened, then there was a commotion all over, and a gurgling sound arose, seemingly, from his boots, and finally the bubbling, undulating mixture of sounds poured forth, astonishing and amusing all who heard it. Truly, Andrew Wiggins was a great laugher.

But I must proceed on the journey, or we will be late. From Pavilion Key we went through Sand Fly Pass into Chocaliska Bay, where we encountered the Ten Thousand Islands. I had long wished to see and determine just what these islands were, and observed them with great interest. Our boats wound in and out among them, and once I landed with some others to examine an island. It was larger than some of the rest, being about ten acres in extent. Around the edges stood a circle of mangrove trees, and inside of that the land was high, dry, shell hammock, and very rich, covered with a heavy growth of mastic, gumbolimbo and other West India trees. You have often heard me speak about mangrove trees, and maybe you would like to know what they look like. The mangrove don't content itself with rising straight out of the ground like any other tree, but props its trunk away up in the air on several small trunks, which

were originally roots. Some of these trees look like a lot of large tent-poles leaning together, and a big tree growing on top. It often reaches a height of seventy feet or more; the wood is extremely heavy, and is used extensively for piers in making wharves, as it lasts a long time in water. The trees bear a long, dry seed, which drop down when ripe and stick upright in the mud, and in a short time a new mangrove is putting forth its leaves.

The islands were, on an average, not more than two or three hundred yards apart, and the smallest one I saw was only fifty feet across, with a few stunted mangrove and mastic trees growing on it. Sometimes, where the islands were close together, the tall, shady trees loomed up in leafy walls on each side of us, and formed an over-arching canopy of green, through which the echoes of the men's voices, and the sounds of the oars rang and reverberated. This was the home of the sand fly. High overhead we heard the shrill hum of untold millions of these little insects, which increased as we went on.

In this arboreal wilderness, the semi-twilight hue of the scene seems to make the little creatures' advances more bold. The whirr of their wings—so fine and shrill, that "nothing seemed to lie 'twixt it and silence,"—was constantly in our ears, and the infinitesimal white spots which marked their presence on the hands and face were the cause of considerable pain and annoyance. They are not like a mosquito; they are too small for you to aim a blow at them, and they are biting you for dear life before you know it.

The water was three feet in depth, and very clear, so that we could see the oyster beds below, with great distinctness. Many of these beds contained oysters of fine size, so that we supplied ourselves liberally with the delicious things. Seated in the boats, we pryed open the shells, and rapidly provided accommodations for the oysters contained within.

After a while we emerged from among the islands, and came to the mouth of the Chocaliska river, and journeyed up the stream for five miles, to the point where it receives the

waters of the Faquahatchie. Here we found a company of soldiers who had just finished burying their commander—Capt. Parkhill—who had been killed by Indians the day before, in the Royal Palm Hammock. There was the most intense excitement among the men, and their speech and actions boded no good for the Indians they were preparing to hunt next day. They had carried his body nine miles in order to find a safe resting-place for their chief.

Capt. Mickler ordered us to return, and when we again entered the Chocaliska bay, our course was directed northward, en route for Marco Inlet, near Cape Romano. After a journey of twenty miles, we reached the inlet, and next morning we were joined by the company before mentioned. We were, in all, about one hundred strong, and were provided with guns, ammunition and provisions. Col. St. George Rogers took command, and, at an early hour, we set forth, ostensibly for the purpose of quelling a rebellion, but many of the men were ready to risk life and liberty for the purpose of avenging the dastardly murder of their chief, Capt. Parkhill.

My next chapter will tell of how we made a trip through the weird and gloomy Big Cypress, and that will conclude the first part of the book.

CHAPTER X.

A SEVEN DAYS' SCOUT THROUGH THE BIG CYPRESS—CLOSING SCENES.

The Everglades and Big Cypress are great problems, in themselves, which can only be solved by time and ingenuity. It would seem as if the climate—the counterpart of which is found nowhere else on the globe—were not to be enjoyed by the settler, here. But those who have had the temerity to venture into these vast solitudes, have often returned with the consciousness of having had a very pleasant time, and the botanist and naturalist was never heard to complain of the scarcity of the flora and fauna of those "dim, mysterious regions." As I have said in a former chapter, I consider it a misrepresentation, for any one to call the Everglades a "winter resort." The Everglades are simply immense stretches of long, low, level prairie, covered for the most part with water and saw-grass, and dotted with little islands. This region of country is some eight or ten feet above the sea, and I do not think the highest elevation can exceed fifteen feet. The great drainage scheme inaugurated by Disston is a fine idea, and the solution of the problem he has undertaken is an object of unlimited discussion, and I think that a successful termination of the project would be of untold benefit to Florida and the whole South. But I think somebody ought to turn his attention to the Big Cypress. There are islands in there that, for fertility, are equal to the delta of the Nile.

You are put to a great deal of trouble in gaining access

to these islands, but a visit will repay a long journey. Some of these beautiful bodies of land are elevated many feet above the water, and the soil is something wonderful. The Indians raised some very fine rice on these bodies of hammock, and that region may be termed, with propriety, the home of the banana, for frost seldom, if ever, enters the dominion of the Big Cypress. Pine-apples would run riot. But little game is found, except around the borders.

One man, in walking over this soil, (so says an old tradition) was so deeply impressed with its fertile appearance, that he took a tenpenny nail from his pocket and planted it near a tree, which he marked for future reference. When six months had gone by, he returned to the spot, and dug for the nail. To his surprise, he found that it had grown into a crowbar, four feet long! A wonderful result, certainly, but as I didn't see the nail planted, nor the crowbar harvested, I can't vouch for the truth of the story.

It is difficult to imagine the impressive solemnity of this mighty forest, unless one takes a trip through it. Strange, unwholesome legends are rife among the Seminole Indians (who are less inclined to superstition than many other tribes) concerning the death-dealing character of certain things to be found in the Big Cypress, and it is a brave warrior indeed, who undertakes to enter the dread "coontee-sassa-hollober" after nightfall.

But the resolute band of soldiers were preparing to prove themselves greater objects of dread to the eesta-chatta than any goblin that might have its lair in the coontee-sassa-hollober.

At an early hour we brought our boats into Marco river, and steered for the Big Cypress. Our course was to the southeast, and after we entered Palm Hammock creek, we followed that stream for nine or ten miles, and came to its head. A grassy prairie half a mile wide lay ahead, and after crossing that we entered the Little Royal Palm Hammock and struck camp. The land was nice and dry, and the air seemed somewhat purer. Did you ever see the famous royal

palm, or Oreodoxia regia? If you have not, a description might interest you. At this place the trees were nearly a hundred and twenty feet high, and stood fifteen or twenty feet apart. The trunks are white, as smooth as polished marble, and as straight as an arrow. Near the top the trunk is bright green, and jointed like sugar cane, surmounted by an immense crown of leaves, the stems of which are sometimes fifteen feet long. No animal not provided with wings, can climb these lofty palms. The royal palm is one of the finest trees in all the vegetable kingdom, and surely Florida can boast of nothing more uniquely grand or singularly beautiful.

Our course next day lay to the eastward, and the immense swamp lay before us and around us. The cypress trees were never more than twenty inches in diameter, and were covered with poisonous vines, whose velvety leaves we avoided as we would shun fire. Especially is a person in danger when freely perspiring; then the pores of the body are open, and the skin is peculiarly susceptible to poisoning from contact with the vines. The arboreal Rhus toxicodendron, or "devil's shoe-string," and the dreaded Rhus vernix, or "thunderwood," were pointed out to us as being worse than the terrible upas tree.

One of the men, a Spaniard, named Johnnie Ortagus, (a native of St. Augustine,) was the most expert climber I ever saw. And he seemed invulnerable to the poisonous vines, for he could handle them without being injured. He could take one of the vines in his hands and scale the tallest tree in a few minutes. His climbing powers were scarcely inferior to those of a squirrel. Col. St. George Rogers directed him to climb the tallest trees and inspect the surroundings. In this way we could gain some idea of the course that lay before us. Ortagus, in reply to questions from Col. Rogers, would describe the country ahead, and we would direct our course accordingly. (Mr. Ortagus is now a hale, vigorous old gentleman, and keeps a restaurant in Jacksonville.)

The water through which we traveled was never more than six inches deep, and was strongly impregnated with

lime, but we were forced to drink it. Sometimes we came to high ridges of land, covered with stunted pines and various species of palmetto. These curious plants grew in the utmost profusion and luxuriance; the saw-palmetto, the trunk of which is usually in the form of a long, creeping rhizome, reared high in the air, almost like trees. Here we found the needle-palm, with its myriads of long, sharp spines; the cabbage palm, and blue-stem.

After leaving these ridges (which were, as a rule, not more than half a mile across) we would generally descend into a low, lime prairie, which stretched north and south as far as the eye could reach. In the afternoon we reached the Big Royal Palm Hammock. Following the trail through the low, wet swamp, we suddenly encountered a high slope, which led us into the Big Hammock. O, what a relief, and an inspiration it was, after the dreary march through the cypress! The lofty palms towered toward heaven, lifting their spreading summits far above the big live oaks and gumbolimbos. There was a large clearing here, and some of the oaks were covered with pumpkin and bean vines; many of these trees were loaded with green and ripe pumpkins, which gave rise to the fancy that they were the fruit of the tree itself. Banana plants, fifteen feet or more in height, and immense corn, were among the products of this fertile region. Without stopping to destroy what the Indians had planted, we proceeded onward in search of the planters themselves.

We then came to a deserted village, on an island three miles from Big Hammock. This was Saf-faj-eehojee's Town, and from the appearance of the log huts, with their fallen-in palmetto roofs, we judged that the town had been deserted for a couple of years. We saw no fresh signs, and went on, and before long came to another village, graced with the name of Emathle-ochee's Town. Farther on was Fin-halloway's metropolis, where a few logs lying in a square, told us that there was once an attempt at building a city, at this place. Here we saw plenty of fresh Indian signs, and followed the trail with greater activity than ever.

The march was a dreary and monotonous one. Seven

long days we marched, and no glimpse of an Indian rewarded our anxious gaze. Captain Dick Turner was our guide. He had never been through there before, but his services as a guide were well rendered. So well did he pilot us through this trackless wilderness that, in a march of seventy-five miles, we missed our destination by only two miles. (When I revisited Chocaliska Bay in 1880, in company with Prof. A. H. Curtiss, I was pleased to see Captain Turner pleasantly located on the Bay, surrounded by rich fields of sugar cane, orange groves and banana gardens. Truly the "Captain" is well fixed, but not a whit better than he deserves.)

Finally we came to the Ock-kollowah-cootchee. Long and frightful as this name may seem, it was no worse than the thing itself. It was a field of dense saw-grass, about four miles wide. The grass was two feet higher than our heads, and was so dense that we could not see a foot ahead of us. One man was selected to break the road, so that the others could pass. No man could endure this task more than five minutes, and first one and then another "took turns" at pushing in front; the side and shoulders were used in this laborious and painful work. To add to our misery, the sun shone with terrible force upon us, and not a breath of fresh air could reach us. Worse than all, the water was poison, and our feet soon felt the effects of it. The men, who were grumbling before, lifted up their voices and gave vent to some hair-lifting expressions. The volunteers from Middle Florida, who had never experienced the like before, were almost furious. But in time we emerged from the dreadful Ock-kollowah-cootchee, and reached Fort Simon Drum.

There we were joined by other soldiers, and made our way to Fort Myers. At that place we boarded the steamer for Fort Brooke. We were there mustered out of the service, and bade each other good by.

My readers have indeed been patient in following me thus far. My narrative has been necessarily a prosaic one, for I started out with the determination of telling nothing but the unvarnished truth. Many of the old settlers can bear witness to the truth of my descriptions, and would not be slow to de-

tect any misstatement I might make. I am loth to part with the comrades who accompanied me through many hardships and vicissitudes. My journeys through the far South have been varied and full of incident, and in the second part of my little book, I have endeavored to give a new phase of Florida life, which will, I hope, leave an agreeable impression on the reader, who has been so patient to follow me thus far.

As to the subsequent life of my companions-in-arms, I can say but little. Captain Jacob Mickler was killed shortly after the war, by being thrown from his buggy near Lake City. Andrew Wiggins disappeared from existence, as it were, without leaving a trace of himself. Ed. Marr died in 1864, on Indian river; and Jim Cook, the dauntless warrior and true hearted gentleman—rough-hewn though he was—departed from a useful life, near Tampa, a few years ago, honored and admired by all who knew him.

[END OF PART I.]

To the Pioneers of South Florida.

We have found, with pride and pleasure,
That our own fair State is known
To the world as the brightest treasure
Of the semi-tropic zone,
For the East and the West awaken
To the glory of the South,
And the wondrous story is taken
Through the North, from mouth to mouth
Of a land, of which they were dreaming,
As though it were not earth,
But which, to-day, is beaming
In the light of its real worth.
Where the winds of evening, sighing
Through the leaves of the cabbage-palm,
E'er whisper of peace undying,
And a life of blissful calm;
A land where Time ne'er bringeth
The snow, nor the dead leaves' fall,
And the angel of summer wingeth
Her flight through the forest hall.
Where the sons of the colder regions
Have found a home and retreat—
And they come in happy legions,
Away from the snow and sleet.
But the land of endless summer,
Where the orange and lemon grow,
Had little to offer the comer,
In the days of long ago.

* * * * * * * * * *

Then, the warriors, in their glory,
Through the virgin forest roamed,
And 'neath the live oaks, old and hoary,
They passed, with locks uncombed,
And an eye that mocked at capture,
And scorned a prisoner's chain—
Will they thrill, with a hunter's rapture,
In the olden haunts again?
Ah, no; for civilization
Has banished each swarthy face,
And now, the Seminole nation,
Is a half-forgotten race.

The guava and lime are growing,
  Where once they slaughtered the deer,
And engine-whistles are blowing,
  Where the war-whoop smote the ear.
The orange its fruit produces,
  Where the Indian wigwam stood,
And offers us golden juices,
  Instead of an enemy's blood.
The Sabbath bells are ringing
  O'er hammock and tangled brake,
And we hear the children singing,
  By the shore of the woodland lake.
Then we ask: Who fought for the honor
  Of our own South Florida—
And who are they, that have won her,
  The glory she wears to-day?

* * * * * * * * * *

We hail them: Hughey and Holden,
  Yates, Barber and Summerlin—
Their harvest is rich and golden,
  And bountifully gathered in—
Hendry, Patrick and Lanier,
  Hancock, and Speer, and Bass—
Each dauntless pioneer
  Began in the wire-grass;
And, wresting the land from the gopher,
  They planted the trees that gleam
With the treasures of ancient Ophir,
  And Pactolus' magic stream.
Through the long, dark years of waiting,
  With their noble wives by their side,
And with courage never abating,
  They watched for the turn of the tide;
And now, in their life's declining,
  Their evening sun is shed
On fruit-filled branches twining
  Like laurels above their head.
Let us wind them a wreath of honor,
  From the yellow jessamine—
Yea, drink to their health and honor,
  In shaddock and orange wine!

—SIGMA.

SOUTH FLORIDA.

PART SECOND.

SCENES IN SOUTH FLORIDA.

SKETCHES OF TRAVEL, INCIDENT AND ADVENTURE AMONG THE LAKES AND HAMMOCKS OF SEMI-TROPICAL FLORIDA.

CHAPTER I.

HOW SPONGES ARE GATHERED AND DISPOSED OF AT KEY WEST.

There is no town in the world that is anything like the counterpart of Key West. Lying, as it does, at the very threshold of the tropics, it combines, in a rare degree, the snap and vim of the Northern clime, with the laxative breath from gardens smothered in the flowers and trees of the equatorial regions. On one side is seen the symmetrical crown of the Australian fir, and close by a stately cocoa-palm rears its head. The dark-eyed Cuban jostles the Georgia "nigger" in the busy market places, and the tall, lank, hawk-nosed "land-stalker" is a Yankee, and no mistake, but, like the rest of his peculiar race, has a faculty of making himself at home, under all circumstances, and on all occasions; which you can easily infer, from the coolness with which he button-holes every ancient (or modern) Cracker who comes to town with a "kyart-load" of garden truck. The sea-breezes are just as pleasant as anybody ever said they were, and I count the town among the nicest places I have seen in the State.

I have seen Key West described as a paradise for lazy men. This is a misrepresentation, and if the writer of that article had ever been there, he would have thought and

written differently—especially if he had ever happened to be without money.

Sponge-gathering and cigar-making are the chief industries of the place, and the former occupation is resorted to by those who cannot endure the strong, narcotic fumes of the cigar factories.

I lived in Key West fully six years before the idea occurred to me to try my fortune among the spongers. Vessel after vessel came in with their precious freight, attracting hordes of anxious buyers, and the fishermen generally brought in no less than one thousand pounds, which sold readily for a dollar a pound. Finally I decided that the "briny deep" should yield up to me some of its treasures, and secured a berth on one of the spongers that plied around the Keys. Besides myself, there were about twenty-five men, who were going to try their fortunes in the business. The manner of fitting out an expedition is as follows:

A vessel is engaged from some owner, who agrees to take half the amount of sponges gathered for the hire of his boat. A stock of provisions is laid in, and each sponge-gatherer is provided with a long pole and hook. The voyages are never more than eight weeks in length, and in that time, if the "catch" has been successful, there ought to be eight hundred "bunches" on board. A bunch weighs about two pounds and is worth at present about four dollars, although at the time I was engaged in the business, the sponger could get only a dollar a pound.

Our crew set sail, and after a four days' voyage, we came to the Anclote Keys, then a noted sponging ground. When we reached the grounds, the small boats were launched, and other preparations made for the business. We had four of these small boats, and each boat was sent out with a man who was armed with a twenty-five foot pole, with two prongs at the end. I rowed my little vessel some distance from the ship and began looking for sponges.

The water was very clear and about twelve feet deep. The bottom was covered with myriads of curious and beauti-

ful growths, such as the Fenestrella, or sea-fan; the sea-feather, and tall, tree-like plants, which I could not classify. White rocks covered the bottom, and on these I could see thousands of young sponges growing. They were a glossy black, and most of them too small to be gathered. But as I went on I could see larger specimens, and finally I reached downward and drew up a fine one. There are many varieties of sponges, the sheeps-wool variety being the most valuable of all. Next in order come the yellow sponge, the "glove," the "grass," "boat" and "loggerhead." The last named variety is absolutely worthless, and is never gathered. The sheeps-wool is distinguished from other kinds, by a multitude of small protuberances, and by its shining black color.

Thrusting the pole downward through the water, I inserted the prongs under the largest of the sponges, and it took but little exertion to detach them from the rock to which they were growing. When brought to the surface, the sponge appears to be a soft, limp mass of jelly. A tough, black membrane envelopes it all over, and this is not removed until the next day. The sponge, after lying out of the water, dies within a few hours, and the animal tissue dissolves, forming a dark, ill-smelling fluid, which the natives call "gurry."

We had selected a spot where the water was only five feet deep, and had driven a circular row of mangrove stakes, forming a pen, which we termed a "kraal." Several of these kraals had been made, and to one of them I carried my load of sponges on the day after they had been gathered. Some of the others had also brought loads in, and after letting them soak awhile, we began beating them with sticks and punching them about in the water, inside the kraals. In an hour or so, the black, outside scurf, or membrane was gone, also all traces of the animal tissue were washed away, leaving nothing but the skeleton sponge. Then we took needles and thread and made them into bunches, so they could be handled easily. Afterward they were taken to the ship.

Deep-water sponging is a much more laborious operation. Two men set out in a boat, and seek a suitable spot where the water is not more than thirty feet deep. One of these men

sculls the boat gently along, while the other takes a glass, constructed for the purpose, and leaning over the side of the boat, examines the bottom closely. As soon as a large sponge is discovered, they stop, and the long, slender pole is let down into the water, with a sweep of the arm, which is acquired only through a long and tiresome experience. Some of the largest of all sponges are found in deep water, and there has been so much gathering done in the shallow places, that one is forced to seek deeper water or give up the business.

When the "catch" was completed, we returned to Key West and sold our sponges. They were separated into lots, and a large number of buyers inspected each lot and made bids. Whenever a buyer has made his bid, the auctioneer proceeds to call out the amount bid for each lot, and thus each cargo or parcel of sponges is consigned to the highest bidder. I have seen as much as fourteen thousand dollars' worth of sponges sold in a few hours, at Key West. The price at that time was about one dollar a pound, but owing to the increased demand, and perhaps decreasing supply, the price is doubled. I have been reliably informed that substantial steps have been taken toward preserving them from extinction, by planting them, and "cultivating" them, as it were. I cannot tell the reader just how that is done, but no doubt it is practiced successfully. If they have done that much, I shall not be at all surprised to learn that they have since built large factories in Key West, where sponges are manufactured, by the wholesale, from saw-palmetto and wool.

Nearly all the sponges around the coast of Florida were destroyed some eight or ten years ago by some myterious, unaccountable calamity. The first sign of the hidden scourge was the appearance of dead fish on the surface of the water, and soon the shores were lined with their dead bodies, and the air became almost pestilential. The oldest and most experienced fishermen were at a loss to account for it. Finally somebody noticed that there were green streaks in the water, two or three hundred feet wide, and many miles long, occurring at intervals around the coast, from the mouth of the

Withlacoochee river to Biscayne Bay. The poisonous strips of water were found as far as thirty miles out at sea, and nearly everything was killed in their wake. Even the sponges were destroyed, and fish became very scarce in the markets along the coast. Many houses in Key West are provided with cupolas, which are used for looking out for wrecks on the reef. From these cupolas we could see immense quantities of dead fish of all sizes, from the largest sharks down, floating on the water. On the shore were myriads of the strangest looking fish I ever saw, and there were some species, of which no one had ever before heard or seen, and which must have come from very deep water. Even the dreaded *moray*, (a long, slender, serpent-like fish, which lives in holes in the rocks, where the water is a few fathoms deep, and whose bite is very painful and dangerous) and thousands of sponges, of all varieties, besides, many curious species of crustaceans lined the shores in heaps, and the task of burying them was no light matter. Porpoises seemed to be the only kind of creature that could withstand the mysterious poison.

Fishing-smacks, on their way to Cuba with a cargo of live fish on board, sometimes encountered these streaks of dark green water. As soon as the smacks entered the poisoned water, the fish, which were kept in "wells" in the bottom of the boats, commenced floundering and dashing around, and in a few moments turned on their backs and died. In this way many of the poor fishermen lost the fruits of their hard labor and were forced to put about and return to their fishing grounds. The strange plague lasted a month or two, when the green streaks disappeared, but it was a good while before fish became plentiful again.

Many theories were advanced concerning this curious occurrence, but I have never regarded any of them as entirely satisfactory. Some people thought it was a poisonous liquid that flowed from the Withlacoochee, and, mingling with the Gulf Stream, encircled the peninsula. I don't believe a word of that, for there is nothing in any Florida river to produce such a result. Others, with more cogency, insisted that there had been some eruption on the bottom of the ocean, whereby an

immense quantity of acid or gas was liberated, causing death and destruction to almost everything with which it came in contact. I don't suppose the real cause of the mysterious plague will ever be found out, but the fact of its having destroyed millions of dollars worth of fish, is well known among those who were living around the coast at that time.

CHAPTER II.

CATCHING THE MANATEE, OR SEA-COW, ON THE ST. LUCIE—DESCRIPTION OF THE CURIOUS CREATURE.

The St. Lucie river is one of the shortest in the State, if not in America, being only ten miles in length. It is, however, scarcely a separate, clearly-defined river, and some contend that it is merely a part of Indian river. A small stream is formed from the water that oozes from the Halpattee-oka Flats, and broadens and deepens until it is navigable for small boats, and when it reaches St. Lucie bay it is of quite a respectable size.

There is something peculiar about this stream. Along its banks, plants are found which are sought for in vain elsewhere; and the Indians regard it with mysterious awe, so that it might be with propriety called the Ganges of the Seminoles. But the characteristic which gives it such importance in the eye of the hunter is that here the rare manatee is to be found. These animals were once quite abundant, in many parts of the extreme South, but I think I can, with propriety, assert that the St. Lucie river is the only place where the manatee can be looked for with any degree of certainty. The high prices paid for these rare animals, induce many people in this region to hunt them, and it was my good fortune once to be present at the capture of a large one.

Perhaps it would be better to give a description of the

manatee before we proceed to tell how they are caught. It is a difficult task, for we have here to deal with a creature whose like is not to be found anywhere. A more awkward, helpless, and curious creature than the manatee, when landed, I never saw. The head is broad, and the eyes are completely hidden by heavy folds of skin, and the mouth is shaped very much like that of a cow, in every way but the teeth. These are so long and sharp that one might at first be led to believe that they belonged to a carnivorous animal. The sea-cow, nevertheless, is a strict vegetarian, and eats nothing but aquatic plants. It has been asserted that its only food is the manatee-grass, which grows in immense quantities, in the St. Lucie river. This grass has large, broad blades, and is found in eight or ten feet of water, growing on the bottom and extending to the surface.

A full grown manatee should weigh about twelve hundred pounds, although one monster was captured, many years ago, which weighed fifteen hundred. Such a one would be twelve feet in length, and have a girth of four feet. They are provided with flippers about ten inches in length, and the body diminishes into a large fan-like tail, similar to a porpoise. The skin is black, and sparsely covered with short, black hair. They move with considerable rapidity through the water, and although a most clumsy-looking animal when on land, they understand very well how to conduct themselves in their native element. They possess, perhaps, the most acute hearing of all animals. So delicate and perfect is this sense, in the manatee, that the sound of an oar, no matter how carefully handled, will alarm them at a distance of half a mile. It is a common habit, in Key West, in speaking of a man whose hearing is acute, to say that he hears like a manatee. This is a wise dispensation of Providence, for the manatee is lacking in almost every ordinary means of self-defense. When caught, they never attempt to bite, and cannot in any way resent the indignities offered by their captors.

I tasted manatee flesh once, and shall never forget it. The fattest, juciest Tennessee beef is by no means equal to it, and I very much doubt if there is any anything in the animal

kingdom, that is so entirely delicious. One of them was stranded on the beach near St. Lucie Bay, and some hunters found and killed it, and that was the time I found an opportunity to test the flavor of the flesh.

In the year 1858, I met a man named Kelly, who, with two or three others, had started out on a manatee hunt. They had a large marlin net, and a wooden tank, for the purpose of keeping the animal, should one be caught.

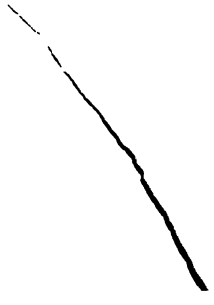
The spot selected was a cove, formed by a bend of the river, where the water was twelve feet deep. The net, which was three hundred feet long, was extended between stakes, set firmly in the bottom, and the hunters retired to their huts in the adjacent hammock, and patiently awaited results. Two or three times a day we went down and inspected the net, but nothing was to be seen, except an occasional alligator, who beat a hasty retreat through the large meshes, as soon as he perceived the danger he was in. A small row-boat was used, in going to and from the net, which was about a quarter of a mile from the shore.

After two weeks of waiting, we were at last rewarded by seeing the floats bobbing about in a lively fashion, one morning when we visited the nets. Excitedly, but with sure movements, the men took a bundle of inch rope, and set out for the captured prize, who was creating quite a commotion in the water, and tangling himself up beautifully, in the relentless meshes of the marlin. I did not go out in the boat and consequently did not get the first sight of the monster, but they soon tugged him into shallow water. A combination of ropes and pulleys was arranged, and he was dragged ashore, and with his twelve hundred pounds, he was by no means easily managed. He was then placed in the tank, which was six by ten feet, and kept until a sloop arrived, which carried the precious freight to Key West. This was a male, and about a week afterward we caught a female. This was the only pair I know of ever having been captured, and they should have brought quite a handsome price. But as it was, they were fairly given away. As well as I can remember, they brought only seventy-five dollars. P. T. Barnum paid one thousand

dollars in gold, some years ago, for a manatee not as large as some I have seen, and their extreme scarcity would now cause them to be valued at perhaps three times as much.

The manatee was kept a week before the sloop arrived, and I formed quite an intimate acquaintance with the strange creature. For the first day or two he was shy, but I commenced scratching him on the head, and when he saw that my intentions were good, our acquaintance ripened into something like friendship. I stroked and scratched his big, ugly head, and he opened his mouth and devoured bananas, cabbage leaves and delicate bits of vegetables which I offered him. Every time I came to the tank, the huge beast would open his mouth for some little tidbit, and present his head for a scratching. During the week the water in the tank was changed twice—once with fresh, and once with salt water; one is as good as the other for the manatee. I had become quite interested in my pet before the week had passed by, and rather regretted the advent of the sloop, which carried him away.

In days long gone by, the Seminoles living in Whitewater Bay, near Cape Sable, killed the manatee, jerked the flesh and sold it to the Spaniards at a good price, and ten years ago the meat could be bought at fifty cents a pound. Of course, the animals are becoming far too scarce to admit of its being sold at all. There is no doubt that the manatee is fast becoming an extinct animal. Like the dodo bird, which flourished in the East in the middle ages, but is now extinct, the sea-cow will pass out of existence, and will be looked upon, a few centuries hence, as a monstrosity, and the only remaining trace of its former existence will be a few old bones, and an antiquated volume, containing a description of it.



CHAPTER III.

HUNTING BEE-TREES ON THE UPPER ST. JOHNS RIVER—A STORY AND A TRAGEDY.

Life in Florida has its sweets, and, like the grandmother, its bitters also. Among the sweets of an existence in the State, may be reckoned the finding of bee-trees and consequent discovery of a fine lot of pure, rich, wild honey. That is, provided the little insects do not take a notion to avenge the desecration of their castle and destruction of their treasure. And I have often known them to "get in their work" on their human robbers in such a forcible manner as to render the job anything but sweet.

Of course the incident I am about to relate was not the first of the kind I had experienced, for I had been familiar with bee-hunting since early boyhood. But I do not remember to have ever had such success as we had that time. The way it happened was thus:

I was living on Indian river, near the mouth of the St. Sebastian, and one fine, sunny day in early spring, two of my neighbors came to me and proposed that we go on a hunt for bee-trees. The idea was favorable to me, for I had long been wishing for a taste of honey, and we made preparations for starting next day. Each took a gun and plenty of ammunition, together with provisions for a week.

Bees and honey were not the only objects we were going to look for. Obeying an instinct which is very strong in many people to expect something better ahead, we thought

we could find land in that region we were going to visit, which would eclipse anything we had yet seen. Our destination was a certain region on the west side of the St. Johns river, near Lake Winder, about fifty miles away. We reached the place on the second day, and were disappointed to find that the land was low and flat, and in every respect inferior to that which we had left behind. But we applied ourselves next day to the hunt for bee-trees, and were not disappointed. In the morning we pressed our way through the briars and bushes of two or three bay-heads. and entered a low palmetto flat. It was not long before we heard a hum in the air, and one of my comrades, named Patrick, directed a sharp glance upward, and saw a few bees issuing from a hole in a large pine about thirty feet from the ground. Immediately afterward we found another tree which bore unmistakable evidence of being the home of a large quantity of bees.

We marked the trees with our axes, scalping off the bark and leaving a broad, white mark which could be seen a long distance through the forest. Continuing through the woods, we kept our eyes and ears strained to detect the little workers. In going three-fourths of a mile we found no less than eight trees, and they all gave promise of a large yield of honey. But we postponed cutting the trees until we had made a more thorough inspection of the surrounding country.

That afternoon we shouldered our guns and went on a hunt for deer and bear. The St. Johns at this place was about one hundred feet across, and was navigable for small steamers, although none had ever penetrated that region at that time. We reached Lake Winder late in the afternoon. Near this lake we found a clump of fine cabbage-palms, and heard a strange, ripping sound, as we drew near. Looking up in one of the trees we were astonished to see a large bear sitting on top, trying to pull out the tender bud of the palm. He had flattened out the crown of leaves so as to form quite a good lodgment for himself, and was untiring in his efforts to extract the sweet, tender bud. He had not yet observed us,

and was too much absorbed, perhaps, in the anticipation of the delicious feast he was going to enjoy, to notice his surroundings. Finally the bud broke loose and the bear swung backward with all his weight, but the bud came out too easy. He had not calculated the sudden relaxation, and the result was that he lost his balance and came crashing to the ground. He hastily gathered himself up, and at the same moment his eyes fell on us. With a startled grunt he scrambled away into the bushes, and I must confess, that by the time our firearms were in readiness, he was thrashing his way through the thicket, safely out of our reach. Pursuit was worse than useless, and it was growing late, so we returned to our camp.

In spite of the low, flat character of the land, it had its charms. The saw-palmetto and loblolly bay were in bloom, and their heavy sweetness burdened the night air, while the ground was carpeted with the spicy, aromatic pennyroyal, which gave forth its aroma as we walked through it. As Patrick remarked, the conditions were in every way favorable for bees, and he confidently predicted that the yield of honey from our trees would be a large one.

As early next morning as we could make preparations we commenced on the bees. Two of us took a good, keen ax apiece and proceeded. Our first tree was two feet in diameter, and "sound as a dollar." But our axes were sharp, and the thought of a solid yard of well-filled honey-comb braced our muscles, and the bees had hardly begun to get uneasy before their dwelling-place trembled in its foundations, and soon smote the earth. They were somewhat stunned by the fall, and I took advantage of the opportunity by running forward and stopping the hole with a bunch of moss.

About a foot from the hole we cut out a large chip, and proceeded cautiously to open up the hidden treasure. Meanwhile, one of the men took a short stick, wrapped a bunch of rags around it and set it on fire. This produced a large volume of strong, suffocating smoke, and was intended to discourage the angry insects from pouring out of the holes and attacking us.

Soon the honey was reached, and with very little trouble, Patrick reached into the hollow and drew out a huge piece of comb, covered with dead and crippled bees, and although thousands were crawling over his hands, none showed any disposition to sting. Whenever they tried to swarm out of their prison, an application of the burning rag would repress them instantly. From this tree we secured at least twenty-five pounds of the best honey that ever was gathered from flowers. We then retired to a shady spot, each with a large piece of comb, and after selecting a few large saw-palmetto leaves, we wove a net of them, and deposited our treasure thereon. The bees soon filled the air around the fallen tree, and would have perhaps made it lively for any one who had the temerity to approach them.

Seated on a log underneath a large cabbage-palm, we had before us a feast that would have tempted a dyspeptic anchorite. Be it known that three mortals on that day, ate so much honey that they avowed the bees could have all the rest, for all they cared. But after the fierce thirst, occasioned by such a diet, was quenched, the work of destruction was renewed.

With his hat on the ground under his feet, and his head thrown back against the palm-tree, Patrick was nibbling a choice bit of new unsealed comb, when he suddenly remembered that he had an adventure to tell. He was in that happy stage when the mind is as tranquil as a spring morning, and the stomach has earned the warm gratitude of its owner, for having such a liberal capacity. Patrick was full—not quite too full for utterance, else we would have been compelled to forego the pleasure of learning just how and where he passed through such pleasant experiences.

Clearing his throat with a consequential air, he began: "When I joined Cap. H's. reegiment a couple of years ago, nobody ever thought about me a-gettin' any higher than a private, or a corporal at the best. But I was a-gwine to prove jist what stuff was in me, and I saved my reegiment, and don't you believe nothin' else."

Of course we wanted to know how Pat had saved his regiment, and after waiting discreetly a few minutes, in order to give us an opportunity of asking him to continue his narrative, he proceeded:

"Well, I tell you how it was. You see we kinder got out o' grub. Now, I've knowed of reegiments that fowt like killin' snakes, and didn't have no shootin' irons, nother; but when it comes to a lot of men fightin' when they haint got enough in their craws to keep a week-old chicken alive two minutes, they haint a-gwine to do much fightin', I can tell you. Well, it was jist that bad with us. We tramped through swamps and over hills, and we couldn't shoot nothin', not even a kyarn crow, nor a buzzard. The Cap. had begun to look mighty black, and says he, 'Well, bullys hit's about gittin' the best of us, this time, and we mowt as well say our prayers and hold a council of starvation,' says he. Says I, 'Cap., I'm nothin' but a common soldier, but if you'll gimme a chance I'll dust around and have everybody full to the chin before two hours,' says I. The Cap. allowed I was jist a-talkin' to hear myself, but all the same, he 'lowed I might try, seein' as how things was lookin' so black. To-be-sure, some of the men was a-lyin' down, and fixin' to drop off. One of 'em 'lowed as how he had been born with a pipe in his mouth, and was a-gwine to take his last smoke, feelin' happy and contented. I told 'em as how I was a-gwine to knock all that nonsense in the head, and that they must not give up till they hearn from me agin. But they jist wunk their eyes and rolled over."

The listeners cleared their throats incredulously at this tragic turn of affairs, but Pat continued, as he artistically severed a piece of comb, and cautiously proceeded to consume it:

"Well, I left 'em lyin' there, and knowed I'd have to skedaddle, or I'd find a fust-class funeral all in full blast when I got back. I took a ax and went atter a bee tree. And, lo and behold! I hadn't gone more'n a quarter 'fore I seen a stream of bees a-comin' out'n a big forked cypress. I fell to choppin' on it, and hadn't much more'n got through the sap,

when out popped a stream of honey as big as my arm." A most energetic yawning interrupted the narrator at this moment, but he dauntlessly continued:

"Maybe you wouldn't have believed it, but that honey was as clear as spring-water, and I cotch my hat full the fust thing. 'But gosh!' says I, 'that won't begin to be a taste for them starvin' critters.' So I took and peeled off a big hunk of bark and let it run full. Well, I looked through the swamp and seen a 'tater patch on a hill on t'other side. I knowed them fellers 'ould want sump'in' 'sides pyore honey, so I run over there, and it wan't no time 'fore I was a-grabblin' them 'taters. Yes, a big flop-eared hound did make for me, but about the time he come 'yoogle, yoogle,' atter me, I gin him a dost from my rifle, and you know them there pills allus gits in their work ——"

At this supreme moment a solitary bee wandered past, and perhaps becoming angry at the coolness with which we had appropriated his hard earnings, surely and quickly selected Pat's upper lip for his resting place. The struggle was short and sharp. Pat danced the can-can, making havoc with some of our honey, and it was with a sad eye and pulsating lip that he resumed his seat. His remarks were brief, but to the point, as had been the encounter with the angry insect, and when we ventured to ask whether that was the kind of "pills" he had referred to, he looked dangerous. We wondered what became of the starving "reegiment" that had lain down to die, but we were not enlightened any further as to their fate. Pat went about with an overhanging lip, and a dogged determination to say as little as possible.

We then cut several other trees, and secured as much of the honey as we could carry home in our improvised knapsacks of saw-palmetto. We brought home enough honey to last for several weeks. Even at this day, the region around Lake Winder is rich in bee-trees and honey, and people sometimes go as far as thirty miles to get a stand of bees from that vicinity.

CHAPTER IV.

IN WHICH A COMPANY OF SOLDIERS GET SHORT OF RATIONS AND THE READER IS INTRODUCED TO A REMARKABLE FAMILY.

I beg my readers to excuse me for recurring to an incident which might have come under the head of "War Reminiscences;" but, at this day and time, we can, through the agency of memory, enter the battle-field and view the strife without fear of stray bullets, and the terrors of those days have given place to the quiescent recollections, which still form the darling theme of many a veteran in the evening of life. As this will probably be the last of my "war series," I hope the reader will patiently hear me through the recital of an adventure of mine, which, while perhaps devoid of dramatic or sensational detail, is none the less strongly impressed on my memory.

First, I will introduce you to our camp, situated on the east side of Pease Creek, half a mile from Fort Meade, on a little stream called Sink Branch. You observe that the surrounding country is high, rolling pine land, but as we cross a low ridge covered with willow-oaks, we come suddenly upon one of the wonders of this remarkable region. Making our way through the tangle of myrtle and palmetto, we suddenly behold, lying at our feet, a crystal-clear spring, bubbling up with great energy. The spring is twenty feet across and is fathomless. In all probability, this spring is fed through some deep subterranean passage, by the waters of Pease

Creek. The water is deliciously cool and as pure as mountain dew. Under the shade of some overhanging willow-oaks we pitched our tents, and I doubt if we could have found a better camping-spot in South Florida.

We rose from an invigorating breakfast of fresh venison, on the morning of the tenth of May, 1857, and assembled respectfully together, to receive commands for the day's service from our captain, William B. Mosely, of the Florida Mounted Volunteers. (Captain Mosely was a son of Ex-Governor Mosely, of Florida, and was one of the best men I ever knew —the soldiers were all much attached to him. He once owned a large tract of land on the Heights, near Palatka, and I believe is still living.) For many days previous we had not been called upon to perform any serious or exciting duty, and had deported ourselves as hunters, rather than soldiers. But now, something more serious was before us. Captain Mosely told us, briefly, that we were to go on a scout and gather in the few Seminoles who were yet out of the fold. In other words, we were to penetrate a region, which, at that time, was almost entirely unknown and untraveled. That, too, in the face of rumors of the ugliest sort, concerning the dire fate of certain venturesome parties who had penetrated into this unpeopled wilderness in search of game, but no animal came near them, except the black vultures which found their poor, starved and shriveled corpses near some bay or hidden stream, where the lost hunters had lain down to die, in despair of ever getting home again. The distance to be traversed was something near a hundred miles, and the "Jornada del Muerto"* that lay between, held out but little inducement to us, although not one of the stout Florida volunteers hesitated for a moment to obey the call of duty. Our destination was Camp Whipple, where a company of regulars

*The "Jornada del Muerto" (Spanish "Journey of Death") is a long arid strip of land lying west of the Rio Grande, where travelers often perish for want of food and water, while trying to cross the great soda plains. In the Florida "Jornada," however, the traveler suffered only for want of food. Water was plentiful, and only the lack of game and the sparse population rendered it unsafe for those who attempted the journey unprepared. But since then the region has become the home of a happy and prosperous people.

were stationed. At that place we were to turn over our prisoners, if we were so fortunate as to make a capture, make our reports, and return to Fort Meade.

It was perhaps six o'clock in the morning, when we shouldered arms and marched forth over the long slopes, carpeted with wire grass, which quivered and swayed in the morning breeze like a ground-swell on the ocean. The cavernous excavations of the gophers, and the little hillocks of yellow sand, upheaved by the "salamanders," were the only traces of animal life to be seen in that lonely spot.

Then we descended into long stretches of flatwoods, covered with a rank growth of blueberry, myrtle, saw palmetto and siren-flower. Our eyes were well practised in detecting Indian trails, but we utterly failed to discover anything whatever. Evidently the wary redskins were ensconced in some thick, shady hammock or bay-head, not trusting themselves out on open ground.

And whenever of one these jungles was approached, we began to look out for a shower of bullets from the hidden foe. Very often had a whole company been routed by a fusilade from a few dastardly rascals hidden in the palmetto and bramble, through which they glided with the ease of rattlesnakes, when pursued. In the hammocks the white man was hardly a match for the Seminole.

We marched along until the end of the second day, when our provisions gave out. The farther we went the less encouraging became the prospect, and in the morning we began to feel serious, for as the sun ascended, our appetites rose accordingly, and the wherewith to satisfy our cravings was no where to be found. From hunting human beings, we turned our attention toward hunting for something to eat. When the day was far advanced, and we were faint and weary, one of the men found a bunch of comptie, the famous bread-root of the Indians. We tried to prepare some of the roots for food, by peeling them and frying them in the little mickle of lard we had saved, and we forced down a few spoonsful of the

wretched mess. It is not necessary to say that we vowed to discard comptie from our bill of fare in the future. When prepared properly, it tastes very much like arrow-root or cassava, although it does not contain as much nourishment as either.

The morning of the third day dawned upon a landscape radiant with dewy flowers, but it brought but little comfort to the handful of starving soldiers, who were looking as though they were well-nigh exhausted. "Tat" Kendrick and I volunteered to set forth in search of Camp Whipple, which we knew must lie within ten miles of us. Mounting our ponies we struck out toward Pease Creek, and reached the mouth of that stream after a two hours' ride. At this place we fired off our guns, and were rejoiced to hear the answering report of a gun away off to the south. We repeated the signal, fearing that there might have been some mistake, and again the friendly booming of the guns told us that deliverance was near. My companion, "Tat" Kendrick, usually so vivacious, witty and full of life, had grown haggard and wan, and the few words he uttered were freighted with woe unutterable. His hopes revived, however, when he heard the guns. Right here, before I go any further, I wish to say a few words about the Kendrick family. They were a jovial, fun-loving set of mortals, who often whiled away the hours when in congenial company, by telling monstrous tales, which by far eclipsed Munchhausen or Jules Verne in the richness and grotesqueness of their imagination. Finally, "Old Bill Kendrick" became known as the "tarnationest story-teller in all Flurridy," and so rapidly did his fame spread, that people began to "make allowances" for everything Mr. Kendrick said, whether joking or in earnest. This sad state of affairs did not alarm the old gentleman in the least, although it did him great injustice, for he was, after all, a sober, industrious citizen, his greatest drawback being a light regard for the welfare of his own good name.

As usual, when a person attained distinction in that region, everybody was ready to swell his reputation and add to his fame. Anybody who could make up a yarn on old Billy,

repeated it whenever practicable, and many of his traducers were his inferiors, when it came to that. Somebody, who had very little else to do, told a huge story about Billy Kendrick and his brother Tat, which represented the latter as having once out-lied his brother Bill so completely that the old gentleman was sorely grieved; and bowed his head and wept, and the sound of his weeping was heard afar off—boohooing like a colicky baby. I can not at this moment distinctly recall the yarn supposed to have been told by Tat, but I think it was something about a fish he had caught, which was so large that it made a hole in the water so big that it was three days in filling up. They said that the yarn reformed Bill, and that he quit the romancing business then, and for all time.

Tat Kendrick rode off toward the spot from whence the sounds of the gun came, while I returned to the camp and reported the good news to our captain. It put new life into every man and strengthened them for the journey.

Now, I am strongly tempted to unveil a tragedy which was being enacted as I came into camps, wherein a poor, helpless gopher was the victim, perishing at the hands of a dozen soldiers, but I will not betray my companions-in-arms, for any consideration. Besides, if I were to tell you that the men, with all due reverence and respect, presented the two forelegs of the miserable little turtle to their captain, before consuming the rest with the relish of starved vultures, you would not believe it; so, I will remain silent on the subject.

When we reached Camp Whipple, we were in a sad condition; completely exhausted and half-delirious. We were of course not allowed to eat as fast as our appetites prompted, and it was a long time before we were satisfied. We were taken care of in the best possible manner, and in a week were able to return to Fort Meade.

CHAPTER V.

SOME REMARKS ABOUT THE SEMINOLES—DESCRIPTION OF THE "GREEN-CORN DANCE," AND OTHER CUSTOMS.

The annals of this decaying race, if written in strict obedience to the laws of truth, and without prejudice, would place them in a better light than the one in which most people are disposed to regard them. The Comanche and Arapahoe are as inferior to the Seminole, morally and mentally, as is possible, in two tribes of Indians. The fiendish instinct which leads the wild tribes of the West to prolong the death of a captive over a slow fire, is totally lacking in the red man of Florida. Through all the long and bloody strife which preceded the settlement of Florida, no well-well-grounded tale was ever told, of a Seminole putting a captive to death in an unnatural manner. He was none the less heroic or warlike, for his lack of brutality; in war, his first thought was to subdue his enemy at once and forever, with a bullet; the thought of a lingering death was not pleasant to him. The customs and habits of the aborigines of Florida are not such as as wonld grace a parlor or ball-room, but they are by no means repulsive. The wild, free life which suits them best has engendered in them a love of freedom, which they know how to fight for with energy and wear with dignity.

However, the few Seminoles who remain as relics of past glory and power, are becoming demoralized, in an alarming degree, by the encroachments of modern civilization

and "wyomi" (whiskey). These potent agents have, in a great measure, subjugated the eesta-chatta's wild, unbridled tendency to live and die as free and as innocent of work, as the alligators and herons of his native marshes.

The average Seminole of to-day scorns any impediment in the way of breeches, and seems to think that the use of these garments betokens little else but vanity and extravagance on the part of those who wear them. The change of the season does not affect his attire, for the only garment between him and the world—a stout, well-greased shirt—serves him as well in winter as in spring. Sometimes they come striding into Kissimmee, as stately and *en deshabille* as a bronze statue of Mercury. Lately, however, the braves are presented with a pair of pants immediately upon their arrival in Kissimmee. Tom Tiger has formed the habit of dressing in a becoming manner, and when rigged out in a pair of new pants, a pair of moccasins, a bright, clean calico shirt, and a half-dozen red handkerchiefs around his neck, crowned with an immense red turban, no one can help admiring him. His splendid figure, and the careless, unconscious grace with which he carries himself, will always impress the person who meets Tom Tiger for the first time. Billy Buster, who is a little older than Tom, does not reflect much glory on his his ancestry. Billy still remains as unregenerated as can be, and disdainfully refuses to accept the pair of pants usually tendered him upon his arrival in Kissimmee. Nobody ever saw Billy Buster dressed like a white man, and it's very likely that nobody ever will.

The Seminole language is a curious anomaly of verbs adjectives and nouns: I am almost tempted to say that these complete the parts of speech in Seminole grammar. The words are almost invariably accented on the penultimate syllable, and are rich in aspirates and linguidentals. Like the Russian language, the Seminole has no article, the words "the" and "a" being unknown. I will give the following Seminole words, with their eqivalent in English, in lieu of a longer dissertation on the grammar of the language, and in

pronouncing them, the reader should bear in mind that all the words are accented on the syllable next to the last:

Ab-bass-wah.....Bread.
Soff-kee.....Grits, or comptie.
Po-leg-dah.....Stool or chair.
Ee-fah.....Dog.
Hal-pa-tah.....Alligator.
Ee-cho.....Deer.
Che-lok-kah.....Horse.
Wah-ku-hoo-tee.....Bull.
Wah-ku.....Steer.
Wah-ku-pos-see.....Cow.
Wah-ku-pos-see-ne-hah.....Butter.
Toad-kah.....Fire.
O-skay.....Rain.
To-kabiss-loo.....Boat.

The following words form an exception to the general rule, having the rising inflection on the last syllable:

Chan-kee.....Hand.
Thath-o.....Fish.
Chit-tokkanee-wah.....Money.
Chit-tokkanee-wah-katee.....Purse.
Lo-kasee.....Bear.

The above will suffice to give the reader an idea of this barbarous tongue, and will probably satisfy all who survive the first trial.

I do not think there are more than three hundred Indians living in Florida at the present day, although no accurate figures can be obtained, owing to their shyness and dread of anything pertaining to "red tape." Rumor once had it that Jacob Summerlin, one of the foremost of the frontiersmen of Florida, and a cattle-king of no mean dominion, once laid a striking and original plan for taking a census of all the Seminoles in Florida, which apparently should have suc-

ceeded. It was alleged that he sent an agent among them, to announce that a grand festival was to be given at Fort Myers, and the whole tribe was invited to partake of it. But the plan was a failure; "Holiwaugus—no good!" was the sententious reply, and no amount of argument or explanation could convince them that the invitation did not arise from sinister motives.

Like most other tribes, the Seminoles consider the labors of the field far beneath their dignity. The squaw is the farmer, while the brave warrior scours the hammocks and flatwoods in search of game, or dozes away the long summer hours beneath the oak and palm. The fine corn and pumpkins, of which I have spoken in the first part of my book, were planted and tended by these patient, horny-handed daughters of toil.

Many years ago, I became acquainted with a young man named Moore, who had earned quite a reputation by his attempts to affiliate with the Seminoles, and become as one of them. He stayed with them three months, and in that period of time, saw many of their peculiar manners and customs displayed. He often spoke of the famous "green-corn dance," which he had once seen. Now, I never was an eye-witness of this peculiar ceremony, and will have to quote Mr. Moore as my authority for the following description:

He had been with them perhaps a month, and had been initiated into many of their mysteries. In his intercourse with them, he had picked up enough of their language to make himself intelligible to them; his fine sportsmanship, unerring aim and unfailing good humor had won the admiration of the young braves, and even the old, long-headed warriors had begun to regard him with less suspicion. Many a frisky squirrel, seemingly secure, on the topmost boughs of the towering live oaks and hickories, came whirling to the ground at the call of his rifle, and if he "jumped" a deer, there was sure to be venison in camp that day. Littleton Hancock, in his palmiest days, could not have been a greater terror to deer than was this man Moore.

As I said before, he had been with the Indians about a month, when he saw the dance, and it was in early May. One day, soon after the orange blooms had faded in the hammocks, and the tassels were just browning over the fields of corn, there were great preparations made, for some sort of feast, which Moore could not account for, and the Indians were not communicative on the subject. Great piles of comptie had been dug and washed; many cabbage palm trees were slaughtered, and the snow-white buds prepared for the pot. A spot of ground was selected in the shadiest part of the hammock, where three giant-bodied live oaks leaned their great arms together, and a large space of ground under the trees was divested of its growth of palmettoes and bushes, and swept clean. A fire of rich pine-knots and oak limbs was built in the center, and after awhile, there was a deep bed of live coals. The women came in from the fields, laden with green corn, which they husked and placed in the embers to roast, while the old men held secret council together, and skinned the deer and wild hogs brought in by the young warriors. From the dark recesses of the Coontee-sassa-hollober, the ancient warriors came, bearing venison and bear-meat on their shoulders; from the islands of Okeechobee, and the heron-tenanted prairies and hammocks of the great Coontee-seema-pollawah and Saffaj-eehojee's Town, the dusky red legions came trooping to the scene of festivity.

When the guests had assembled, the chief, glittering in war paint and silver ornaments, rose to his feet and in a few words, directed the opening of the performance. A circle was formed, and a march begun, during which a strange, dirge-like song was chanted; faster and faster moved the procession around the fire. On and on they swept, not pausing a moment for breath, until finally, the yelling, dancing, jumping redskins sank down to rest, and to feast on the venison, comptie and palm-cabbage, which were temptingly displayed on platters of palmetto. The fragrant brown ears of roasted corn were brought forward and distributed among the throng, as an emblem of future peace and prosperity.

Moore said that one peculiar feature of this custom was,

that all fugitives who had been banished from the tribes, were allowed to return, for a brief period, even when they had been exiled for some grave offense. As the procession formed around the fire, there could be seen brothers, sisters, parents and sometimes sweethearts, standing and waiting for the dear one who had been long absent.

At a Seminole wedding, the new couple enter a ring composed of two or three dozen dancers. The procession moves rapidly around them; the bridegroom carries in his hand a piece of venison, and the bride has an ear of corn, which she hands to her husband, saying: "I will provide bread if you will furnish the meat." Whereupon, the warrior presents the venison to his squaw, and repeats his part of the formula.

Moore also witnessed a war-dance, in which over fifty braves participated. While they were forming a ring, preparatory to commencing the dance, the chief hid himself in the densest portion of the hammock, and no one dared approach him; some mysterious rite was being celebrated, which must not be witnessed by profane eyes—perhaps a consecration of body and soul, to the god of war. In the meantime, the solemn, measured minuet began; in deep chest-tones, the warriors sang the song of battle, their voices rising from a low wail in a minor key, to a roar like that of an alligator. Suddenly, without the least warning, the chief came bounding into the midst of the ring. The circle widened, leaving him plenty of room for his wild leaps and gyrations, and the yells of the excited savages rose to the highest notch. The chief took a stick of sour-orange wood, on one end of which was a carving of a man's head; thrusting this in the ground, in the center of the circle, he drew his long, bright hunting-knife, brought it down upon the carved head, and went through all the motions of scalping. Then rose the death-song:

Ecah-esah-ah-lee—
Ecah-bosah-ah-lee!
Wah-luck-luck-luck—
Wah-luck-luck-luck!
Wah-lucklo-bah-ah-lee!
Olucklo-wah-ah-lee!

The orgies were now at the highest pitch, and it would not have been safe to jump into their midst, at that moment. Moore said that he "lay low and sung easy," while that war-dance was going on. After the ceremony of scalping was ended, the panting braves subsided, and they proceeded to stow away an incredible amount of comptie and venison.

An Indian needs but one cooking utensil. A brass kettle takes the place of pot, stew-pan, oven, basin and bucket, and great care is taken to keep it polished brightly. On rainy days, the squaws whittle out spoons, and that completes the list of table-ware, for the eesta-chatta has no use for cups or dishes.

Seminoles have very strict ideas of social virtue, and any of their number—male or female—who oversteps the bounds of of chastity, is severely punished. Perpetual banishment has often been inflicted on those who broke the laws in this respect; Billy Bowlegs, a former chief of the Seminoles, was condemned to wander apart from his tribe, for a long time, as a punishment for some misdeed of a similar nature. Tom Tiger once brought his squaw to town on a visit, and while there, of course she attracted a good deal of attention. One of the "big men" of the town invited Tom and his squaw to take a boat ride with him, on a neighboring lake. Tom accepted the invitation in silence, but eyed the eesta-hotka distrustfully, all the while; with an Indian's keen pereception, he concluded that the white man was not actuated solely by a desire to please him and his squaw, and he prepared himself for some unfair trick. But the pale-face had no such intentions; the Indians interested him, and he wished to learn some of their peculiar ways. He learned a good deal. Actuated by a sudden burst of gallantry, he seized Mrs. Tiger's hand. Tom raised his gun, and with a "Holiwaugus!" that would have startled anybody, ordered the boat put about for land. Tom and his squaw hustled off down the river, to Rosalie. He never brought his squaw to that place any more, and it is very likely that that white man generally managed to be absent, whenever the Indians "painted the town red."

CHAPTER VI.

NED MARR AND MYSELF TRY OUR FORTUNES ON INDIAN RIVER—A NARROW ESCAPE FROM DEATH.

Many and varied have been the descriptions of the Indian River region, and it is not an easy task to traverse untrodden ground in speaking of it at this day and time. Sidney Lanier dreamed his sweetest dreams under its feathery cocoa palms, and tells us, in glowing words, how his heart was enthralled by the weird beauties of the enchanted river. Audubon, the great naturalist, entrapped the purple gallinule and roseate spoonbill in its silent marshes, and left for succeeding generations, a record of the wonders of that region, and now when the *blase* tourist has become surfeited with the scenes of the West, he often comes to the shores of Indian river, to forget fatigue and *ennui* in the charms of bee-hunting, mullet-catching, and chasing that noble animal, the bear. And if he wishes to descend, at one flop, from the sublime to the ridiculous, he takes a "grain" in his hand, and impales the festive stingaree. This animal (which is also called "the bob-tail end of creation") will receive proper attention farther on.

I was more fortunate than many other mortals, in the selection of a birthplace, and have always been proud of my good judgment in choosing Florida as my native State; indeed, that is the only act of my life of which I can make much boast. Having been born in the semi-tropic zone, I did not have to go through the initiating process, like the people who come here late in life. And as the years increase, I lose not a ray of the sunshine that surrounded my infancy, and I might

well say that the Florida of half a century ago was not more pleasant than it is to-day. The people, with their steamboats, railroads and other big projects have turned things around completely, making a new country of it. And in the midst of all this, the old stagers are all having their say, about how it "used to was." Now my turn has come.

The chilling winds of November, A. D. 1858, were causing the orange trees to huddle their limbs together for warmth and protection, when my companion Ned Marr and myself concluded to forsake our bachelor quarters on Tampa Bay, and seek more congenial surroundings on the east coast. Our objective point was Honey Branch, which had attracted my attention when I passed through that region several years before. The greater part of the remainder of the year was consumed in reaching our destination, and when we got there, the first act of our administration was to build a hut of poles and palm leaves. We were well supplied with knives, forks, tin-plates and other kitchen utensils, having attended to all business of that description before we left Tampa Bay. The spot selected for our future home was a shady nook, in a cabbage palm grove, within a few feet of the river. Taking a sharp hatchet, I sought out some slender poles from a hammock near by. Each pole was about eight feet long, and had a crotch on one end, formed by the short stump of a limb spared for that purpose. The other end was hewn to a sharp point. One pair of poles was cut three feet longer than the rest. I stuck the four short poles in the ground, forming a square of about fourteen feet; the long poles were placed in the middle at the ends so as to give the roof the proper slant. Other poles were used to finish up the frame-work. Meanwhile, my friend Marr was by no means idle. Taking a sharp hatchet, he climed the trunks of the palm trees by means of dead leafstems, and cut off the great green fronds or leaves; depriving these of their stems, he piled them up near the frame of the hut. Then we both went to work, and at the end of two days, had a roof over our heads, and a cosy place to sleep. In all this piece of architecture there was not a particle of iron, everything being lashed together with strips of palm leaves.

Full of peace and contentment, we moved into our new quarters. I can not describe the exquisite sense of comfort I experienced when, after a day of brisk fishing and hunting, I lay down to rest, beneath a roof of fragrant palm leaves; and what music the rain did make, as it pattered overhead! Never more will I see such days of unmixed pleasure; never again can I pass such nights, fanned by the cool breeze, and lulled to sleep by the murmur of the rain. But this isn't business—this straying off the track—and I will finish the description of our palmetto hut, by saying that it was perfectly water-tight, and built to last ten years.

Marr and I, in seeking this region as a home, were filled with the idea that we could make our fortune in an orange grove. As well as I can remember, the "orange fever" did not fully break out until the fall of 1858, but the few who were stricken had it bad, and my comrade and I were among the earlier victims. Reports of enormous returns from small investments in orange groves reached us from time to time, and fired our ambition to "go and do likewise."

In one respect, we succeeded admirably. The spot we selected for the scene of our operations. was one which left nothing to be desired, as far as nature went. A cool spring of water lifted its crystal waves into the sunlight within easy reach of our door; Indian river, with its untold wealth of fish and fowl, spread out to the east of us, and we had only to shoulder a gun and enter the hammock, to supply our table with bear or turkey. Deer were so common that we let them go, sometimes, out of sheer contempt. We cleared about an acre in the hammock, where the soil was blackest and deepest, and grubbed leisurely along, until we had prepared ground for about two dozen trees. We found a wild grove not far away, and transplanted a few of them where we thought they would do the most good. But when the leaves began to have that rich, golden hue which the ripe fruit possesses, and speedily turned into so many dry, withered sticks, we gave up, in despair of ever making an orange grove. We planted them among a tangle of roots, and in taking them up, chopped off nearly all their side-roots, while the tap-roots were lopped off

without mercy. The only wonder is, that they lived as long as they did. If I had practised a little less sportsmanship then, and went about the orange business in the right way, and entered that fine tract of land, I would be worth, to-day, fifty thousand dollars more than I am.

Thus, the winter was whiled away, and spring came. Our nearest neighbor, Captain John Houston, lived fifteen miles away to the north, on Elbow Creek, at a place now called Eau Gallie. But when we got our supplies, we had to take a boat and row about thirty miles southward, to Fort Capron, where Major William Russell kept a little grocery store. The Major supplied the people for leagues around, with the necessaries of life, and his store was the Mecca of many a long pilgrimage.

In the month of May, it fell to my lot, to take such a journey. I entered a boat, and, taking enough dried venison, onions and roasted potatoes along, to keep me a live for three days, set out for Fort Capron. The first night, I camped in a hammock, near the river side. The moon was just rising, and showed up everything plainly. I was intently engaged in picking up dry sticks to make a fire, when I looked up and was startled at the sight of a bear sitting on his haunches, within five feet of me. He was a monster. How in the world it was that I came so near the bear without alarming him, I never could imagine. I groped wildly for the hatchet, and if it had been found, I could very easily have brained him on the spot. Finding that the hatchet was determined to elude my grasp, I yelled at the top of my voice. Such a jump as that bear gave! Talk about your deer, but that bear made better time (and more noise) than a runaway team of mules, as he tore through the hammock. That was the last of the bear episode, and I will now proceed to conclude this chapter by the recital of something none the less true, but a little more serious.

One day in early June, I took a stroll out toward the head of the St. Sebastian, which was not more than two miles away. I was looking for bee-trees, and entered a scope of country

that contained but little water. It was Friday—unlucky day! —and I encountered something that afternoon, which came near cutting short my thread of existence.

The weather was warm, and I became very thirsty. No water appeared to exist in that region at all, but as I was hurrying back home, my eye fell on a green, grassy spot, off to the right, and upon closer inspection, it turned out to be a small dried-up pond, covered with a rank growth of maiden-cane, and a clump of willow trees in the centre. Very naturally, the first thing I thought of was water, and in I walked. I wore nothing on my feet but a pair of moccasins, and should have known better. I had nearly reached the clump of willows, when a blow was struck on my foot, which nearly knocked me down. I hastily parted the grass, in order to get a view of the alligator—for I felt sure nothing else could have given such a blow—and was horrified to catch a glimpse of a stump-tailed cotton-mouth snake of immense size. After delivering the blow, he wriggled off through the maiden-cane so quickly that I could not kill him, but I saw enough to convince me that he was not less than five inches in diameter, and a little over four feet long. These hideous serpents are fully as much dreaded as the rattlesnake, although their poison does not act so quickly. Without a moment's hesitation, I rushed out of the grass, and ran toward home with all my strength. There was a sensation like a piece of red-hot iron clinging to my toes, where the fangs had struck. At every step, the pain increased, and it seemed as if a thousand hot needles were piercing my body. Worse than all, my leg became so stiff and badly swollen that I could not run any more, and began to think that death would come to me in the woods, with no help nigh. Three times I staggered and fell, and each time it was more difficult to regain my feet. With all my power, I continued to cry for help, but my companion did not hear me until I had reached the border of the clearing. He ran out and half carried me to the house.

The poor fellow was almost frantic, and knew not what to do. But like a flash of light into the darkness of the situation, came the recollection of something I had heard Dr.

Reid, of Savannah, say about his method of curing snake-bites. He made a poultice of raw onions, beaten up fine, and applied to the wound. I barely succeeded in telling this to Ed. Marr, when I went into delirium, and did not regain consciousness until next day, when I was surprised to see the injured limb almost as large as my body. Marr was bending over me, and applying a fresh poultice. Faithful fellow! he never closed his eyes once during the night, and had renewed the poultice every half hour. Fortunately, we had raised a good crop of onions, and I know that they saved my life.

The swelling subsided very gradually, and it was two weeks before I regained the use of my limbs. Whisky is considered the sovereign remedy for snake-bites, but there was not a drop of it within a hundred miles of us, and there is no doubt that raw onions, alone, applied in the manner mentioned, will cure any snake-bite, if used in time.

We stayed there until the war broke out between the States, when I left for St. Augustine, to join the army. Ed. Marr remained at the hut, and the next time I heard from him, he had gone on that long, swift journey we all must take, sooner or later. Among all the dear, departed friends, there is none who holds a dearer place in my memory, than this, my companion of the olden time.

CHAPTER VII.

INTRODUCING A GENTLEMAN BY THE NAME OF "ALLIGATOR FERGUSON."—SOME OLD-TIME HEROES.

It is strange how men will get names fastened on them. By some untoward circumstance, the unfortunate wight gets a ridiculous *soubriquet* attached to his name, which, like a deep scar, lasts as long as the man lives. I once knew a man who, by some accident, got his eye injured; the first thing he knew, everybody was calling him "Old Frog-eyed Bill," and another acquaintance of mine was christened "Horse-leg Jim," on account of some slight obliquity in his make-up. Both men were known only by these names. "Alligator Ferguson" and "Alligator Platt" wore their nicknames into the grave. It starts, sometimes, from something a person has said or done, and often from some personal peculiarity. Here in Florida, a man wins a name by his exploits. (I am not dealing, now, with military nomenclature; for of course, majors, generals, lieutenants and commodores are as plentiful as mosquitoes, and a corporal is seen occasionally.) I am speaking of such heroes as Alligator Ferguson and Alligator Platt, whose fame shall never fade from the minds of those who were witnesses of the great havoc made by these men among the alligators, in good old days gone by. Not from any fancied resemblance to the saurian tribe, nor from any amphibious inclination, were these gentlemen graced with the names above mentioned. The titles were fairly and honorably won, and as substantial and unfading as any you ever heard of.

Alligator Ferguson didn't confine his operations any particular portion of South Florida; from Tampa to Biscayne Bay, and from the saw-grass fields of Lake Apopka to the shores of Okeechobee, he created consternation among the scaly denizens of the marshes, and I think he could lay claim to having killed more alligators than any other man living. He made his bed among them, ate among them, spent many months among them, as his only companions, and it is probable that he hardly ever thought or talked of anything but alligators. The gigantic snarls and growls with which they communed together in early spring, was the only music which charmed his ears. At that time of the year, he knew they could be found in pairs, and were more easily captured. He stayed among them so long that he became, as some people said, almost amphibious. One man thought Ferguson's teeth were growing longer, and another, with an exceptionally keen pair of eyes, was certain that the great hunter's skin was growing rough and hard, in patches, preparatory to changing into scales. Ferguson didn't care a cent what they said or thought about him, so long as he could kill big alligators, and sell their teeth.

When I first saw him, in 1880, he had given up the alligator business, and commenced carrying fruit from the Ten Thousand Islands to Tampa. He made quite a snug sum from the teeth of the 'gators he had killed, and became an expert at the business. Teeth were worth from four to five dollars per pound, and sometimes he gathered four and five pounds a week. He never cared anything for the hides, although they were worth more than the teeth. He said the alligators were more plentiful on Fish-eating Creek, but that their teeth were very much inferior to those from other places. On the Gulf Coast, he said, was the best place for real good teeth, and professed a preference for salt-water alligators. Those that live in salt water, are of stouter build, and the head is larger in proportion to the body, than that of the fresh water species. Some people claim that they are more ferocious than the others, but Ferguson didn't seem to think so.

Ferguson was quite an expert at decoying alligators

within range of his gun. He had a way of barking, like a small dog, and when he commenced that, it was not long before you could see their huge snouts sticking out of the water. Another way, was to take a little dog, or pig, in his arms, and twist its tail, so that it would yell, and attract the alligators. A screaming pig will excite the interest and attention of any alligator, no matter how indolent or phlegmatic. Old Jimmie Yates said that he was hunting one spring morning near Tohopekaliga, and had brought a young, fine-blooded dog with him. Coming to a deep, round pool, which formed a small bay in the lake, he commenced looking out for alligators, which he knew were to be found in that place in large quantities. The dog was a little too eager for the sport, and jumped into the water. Jimmie said he tried to call him back, but the dog was deaf to all remonstrance. When he had reached the middle of the pool, he began howling and struggling, and looked back appealingly to his master for help. In a few moments the dog disappeared and was seen no more. "Hit riled me awfully to see my purp gobbled down that-a-way," said old Jimmie, "and I laid for that 'gator. I wouldn't a-took the purtiest fifty dollar bill you ever saw, for that dog, and I jest says to myself, I am goin' to make them 'gators hop. And I did make 'em hop. I takes my leetlest purp, and I wrings and twists his tail untwel he hollers like as if he was a-bein' killed, and first thing I knowed, out popped the head of a whoppin' big 'gator. Then another one of the big black devils poked his sassy snoot out'n the water, and hit warn't no time 'fore the pond was teetotally covered with 'em. I never seen so many 'gators in the known world! I shot and shot and shot, untwel I was bodaciously out of breath, but I made them devils sweat. They eat up my purp (and I wouldn't a-took a brand-new fifty dollar bill for him,) but I everlastin'ly peppered 'em for it."

It would hardly do to dwell very long on this subject, without saying something about "Alligator Platt," another hero of the olden time, whose deeds were embalmed in the lore of South Florida. Platt was not such a great hunter as Ferguson, but what he did, was done quickly and well, and

there was some originality about his exploits. Joshua Creek is a branch of Pease, and flows near the town of Pine Level, in Manatee county. This creek was fairly alive with alligators, and here it was that Alligator Platt exerted his curious talents to the fullest extent. Creeping along under the palmettoes, to the bank of the creek, he peered into the amber-colored depths, and waited for a victim. When a rippling, swirling spot on the water betokened the presence of an alligator, he leaned over, and poised himself. The gator cautiously poked his snout, and then his entire head above the water, and looked around to see if an enemy was in sight. Perceiving no danger, he leisurely floated along on the surface, until he caught a glimpse of Platt's red, excited face, and hurriedly proceeded to sink out of sight. Too late. Platt was not going to let his glory as a hunter become overcast by any such a slip as that. He plunged into the water, and dived after the huge reptile. Those who stood by, anxiously awaited the reappearance of the man, and the immense whirls and swirls in the water where he went down, showed that he was quite busy below. In a very few moments, Platt reappeared, in triumph, astride of the alligator, which he rode to the shore, like a horse. When once he got his thumbs into the alligators eyes, it was easily managed, and although it was nearly twelve feet long, no lamb could have been more gentle. Platt said he could manage the very biggest of them this way, and he advised everybody to pursue that plan, when attacked by an alligator.

Ned Beasley was another fellow who earned considerable reputation by his affection for alligators. It was told, for an actual fact, that Beasley was more alligator than human, and that he was so near cannibal in his tastes, that he frequently put up a barrel or two of 'gator meat, to be used in his house during the winter. He grew real fat and healthy, from indulging in this questionable diet, and often declared that no earthly delicacy could tempt him from a dish of 'gator stew. His chickens were fed on it, and grew to unheard-of proportions. The hogs and dogs, however, let it studiously alone. The chickens would congregate around the kettle where the oil was being "rendered out," and wait for bits of the meat,

which Beasley threw to them, after the oil had been extracted. And it was laughable to see those chickens (so it was said) as they staggered off into some shade to rest and sleep.

Somebody asked Beasley, how he came to be so fond of alligator meat. "Well," he replied, "I'll tell you how it come about, and mebbe you won't believe it, and mebbe I don't keer, whuther you believe it or not." With this ornate introduction, he proceeded to tell how and where he fell in love with 'gator meat.

"Me and my ole dad was a workin' on a boat one time, and there was a whole lot of us fellers workin' together. There used to be a ole 'ummern as would come 'round every mornin' and sell fried fish to us, for breakfast. Gosh, but didn't them there fish go good! 'Peared like they jist slipped down by theirselves. Finerly, the ole 'ummern brung a fish around one mornin', that beat anything I ever hearn tell of. I never seed sich a fish in the known world! She had it fried in meal and pepper, and it was so big that she had it strapped on a piece of fence-rail, so she could lug it on her shoulder. When we was a-eatin of it, we axed the ole critter whur she cotch it, and she tole us hit was cotch down on the Ellifiars," (the Alafia river) "and when we axed her what breed of fish it was, she said it was somethin' like a trout, only hit eat a heap better. And hit shore *did* go mighty good. Dad 'lowed he never had, in all his born days, seen a fish with sich a big back-bone. (You see, that 'ere fish's back-bone was every bit as big as my arm.) And he said hit was mighty cur'ous that there wan't no ribs, nor no little bones in it, and he'd be blowed if he seed any sense in the thing, nohow, and he said he wan't a-gwine to swaller *nary* another bite, untwel he knowed what he was a-eatin. (After all the meat he'd gobbled down!) Finerly, the ole witch tole us we'd been a-eatin' 'gator-tail for breakfast! You jist orter a-seed them there fellers makin' for the edge of the boat, with their fingers in their throats, a-strainin' and a-groanin' like as if they was distracted. But all their cuttin' up didn't do no good; the 'gator was down, and hit was a-gwine to *stay* down. They couldn't throw it up to save their lives. Dad was for givin'

the ole 'ummern a good duckin', but I wouldn't have no sich doin's; 'sides, you see I kinder liked the truck, anyway, and dad had already said he'd seen a heap wuss meat in his time. Dad said he might *a-knowed* hit wan't fitten to eat, by hit's not havin' no ribs, nor no bones, but a whalin' big back-bone. The ole 'ummern never come foolin' around our boat no more, and even now, dad hain't got no use for no kind of fish."

Beasley delighted in palming off alligator meat on his guests, telling them it was corned beef, "jist in from Fulton Market." After the feast was over, it was very funny to him, to see the expression on the men's faces, when he told them what they had been eating.

I have no idea what Ferguson is doing now, and I can not say whether Platt and Beasley are alive yet, or not. But Alligator Ferguson, Alligator Platt and "ditto," Beasley will always remain as monuments of example to those to whom dog and gun are sacred. "Uncle" Jimmie Yates is enjoying a hearty old age, surrounded by children and grandchildren. If you were to pay Jimmie a visit, he would take you out in his grove and insist on your feasting on some of his oranges. Then he would probably give you a greater treat than all—one of his Indian stories. A written account or these things interests some people, but it is iucomparably better to hear it from the lips of the old heroes who went through it all. And nobody can be more entertaining than Uncle Jimmie. Should you ever visit Kissimmee, you would do well to call on him.

CHAPTER VIII.

SOME OF THE CURIOUS AND INTERESTING INHABITANTS OF THE INDIAN RIVER REGION.

If, in any of these statements, you think I have painted "things that are not, as though they were," and given to "airy nothings a local habitation and a name," why, of course, you have a right to investigate. But I will again say that I have started out to tell the truth, (regardless of the difficulties and temptations involved,) for, if my conscience should wear out, there would be plenty of old stagers around the State, who would be ready to let me (and others) know, if I strayed from the path of veracity. Now, with this explanation, here goes.

Didn't I promise a description of the celebrated stingaree? Nobody that has ever been to Indian river, is considered up with the times, unless he has seen this king of aquatic nuisances. We will, in imagination (and with your consent), translate you from your cosy home, to the coquina banks of Indian river. The time of the year is July—a time when you can get a good idea of mid-summer life in this region. Now you make a discovery; there are mosquitoes! You ask me why I didn't mention that fact before; and I comfort you by the explanation that I thought it would be a source of more satisfaction to both of us, if I left you to make the discovery yourself. But, after all, there are not so many of the little vampires, as you think; the shrill cry and bold advances of the few that encircle your head, give you the impression that the country is alive with them. But even if that were the

case, there are so many other things of beauty, that you will forget the little minne singers. If we go out yonder on the bosom of the river, I can show you something new, that for pure, unadultered cussedness and curiosity, is unexcelled.

If I were a poet I would try to make you forget the mosquitoes, by raving about the sunset; how the reflections of the palms in the painted waters are broken up and twisted into a million augers and corkscrews, by the night breeze that is springing up; and would point to the whippoorwill, or bull-bat, sweep downward almost to the water, with a croak that is echoed down the river. But we are on the lookout for stingarees, and must give them our undivided attention. The water beneath us is clear, and we can see the curious creatures crawling and walking on the bottom; we see horse-shoe crabs, sea-porcupines, tarpons, saw-fish, sharks, and many other things very distinctly, and they don't seem to be very much afraid of us. Hold! don't get excited, that isn't a stingaree, that's only a poor, harmless "bishop;" he looks ugly enough, with his tawney hide, with white spots on him, and his eyes are both on the top of his head, about as close as they can be, and he looks like he wanted to raise a row with somebody, but he won't hurt you. Now if you want to see a stingaree; look right ahead. You can't see him very well, he darts about so actively; so when he is speared and brought into the boat, he serves our purposes better. This is a small specimen—only three feet long.

The body, in such a specimen, is about one foot across, and nearly round. It is slate-colored, and three inches through in the deepest part. On each side, it slopes to a thin edge, a flapping motion of which impels them forward. The tail is round, an inch in diameter, tapering to the size of a lead pencil, and has a rough, gristly surface. The eyes are situated about three inches from the nose, and are close together, small and wicked-looking. Its mouth is underneath the front part of the body, and it don't have any teeth worth speaking of. But the peculiarity which gives the stingaree such importance, is the sting. It ornaments that part of the back, where the tail joins the body, is hard and bony, tapering to a very fine

point, and is covered with sharp fibres, which point downward, so that it is very difficult to extract from a wound. A sting on such a specimen is four inches long, and it is able to inflict a very painful wound, which is a long time in healing. An irritating substance, secreted by this barb, which, while never fatal, (as far as I know) is often productive of evil results, such as marasmus and chronic ulcers.

You can wade about among them, where they are swarming as thick as leaves in autumn, but they will never try to harm you, if you don't step on them, for they are not aggressive.

The whipparee is very much like the stingaree. The only difference is that the tail is somewhat longer, and the sting is lacking. The tail is very tough and pliable, and is often used as a buggy whip, and as such, will stand many years of hard service. I imagine that you shiver, when I remark that these hideous creatures are very often eaten. No, the people don't eat the whole animal; the thin edges of the body—commonly called "wings"—are the only parts that are considered fit to eat. I sampled this luxury once, and although I managed to survive it, I wasn't troubled with any ambition to try it again. It tasted a little weak and fishy, and after indulging in a dish of stingaree, my digestive apparatus was afflicted with a peculiar "ever-present goneness," neither to be imagined or described. Where there is such a boundless wealth of fish and fowl that are really delicious eating, I would advise no one to bother with stingarees. They should be the *dernier ressort*—the last dodge of a starving hound. With this, I drop the stingaree subject, as one not pleasant to handle.

The sharks of Indian river are not very dangerous, and if a man falls overboard, I don't think he need fear that he will make a Jonah of himself. The shark of Indian river, according to the account of persons who ought to know, does not possess the dignity of the white shark which follows in the wake of ships, and has to turn on its back before it can bite. They say that the Indian river shark has a mean way of slipping up behind a man that is wading, and nipping as big a

piece as he can out of the calf of the man's leg, generally disappearing with his prize before the surprised and startled individual can make any remonstrance. I hardly credit this, but I have heard some pretty well founded stories of men having been killed and eaten by the sharks in Indian River Inlet. But don't be scared, for if you will only be half-way careful, you will never die by a shark.

Titled peers and noblemen, from all parts of Europe, were once as plentiful on Indian river as you please, but either on account of the disappearance of game, or a complication of interesting affairs at home, they are not so common nowadays in that region. The pink curlew, or roseate spoonbill, is not esteemed at all as an article of food, but its splendid plumage causes it to be an object of great value to the hunter. A roseate spoonbill, captured alive, sometimes sells for a hundred dollars. Snowy egrets, blue herons, and ducks of several kinds, were once to be found here "world without end." Anything richer and more succulent, in the line of game, than the young teals, widgeons and grease-ball ducks, one cannot well imagine. If they had not been so wantonly destroyed, regardless of breeding seasons and everything else, it would still be a sportsman's paradise; as it now is, a man can find a good deal of sport, but in a great measure, the glory of former days has departed. There are still plenty of water turkeys, purple gallinules and blue herons. But the "johnnie gogglin" is worthy of a little special mention. This great bird, which is also called the "whooper," stands, when full grown, nearly five feet high, and when it takes its flight through the pine woods, greeting the rising sun with a clear, trilling cry that resounds through the still morning air, it will always command the attention of the hunter. The flesh of the gogglin is very much like venison. The black-winged curlew, or "flint-head," whose bills are so ponderous that they cannot hold their heads erect, and many other interesting things might be described, but it would take too long.

The mullet that are caught here, in the middle of September, are the fattest fish I ever saw. I have seen rolls of fat fully an inch thick in many of these fish. I was once

present when a haul was made, on a seine in Indian river, where ten men found it impossible to raise it. After raising the foot-line and letting out about fifty barrels of the mullet, the rest were secured. Words cannot describe the delicious tenderness of these fish when first caught. But the highest luxury, in the way of an eatable, that I know of, is a pompano. This fish is by no means common, and, although the largest specimens hardly ever measure more than twelve inches in length, they sell for no less than twenty-five cents apiece, and command a ready sale at that price. They are more plentiful on the west coast than the east. Then we have the drum, that grunts like a hog; the grouper, the red-snapper, and the saw-fish, which often attains a length of eighteen feet. These great fish sometimes get entangled in the turtle-nets, and at such times, are dangerous to approach. I have seen the fishermen cautiously come up alongside of the saw-fish, in a boat, and, with a blow of a heavy, sharp ax, sever the long, serrate snout, cutting it off near the eyes. Of course, the fish could not live long, after such treatment.

I will conclude this chapter by telling a story I once heard, on James Russell, who is still holding forth on Indian river, I believe at Fort Capron. Now, it was alleged that Jim and three others went out into a dry willow marsh, where a great many alligator-holes were to be found. (In dry seasons, these holes have no water in them, and are generally tenanted by alligators of medium size. There are more of these "dry-holes" around Southport than any other place I ever saw.) Jim carried a rope with him, but the most persistent questioning failed to reveal his purpose in carrying it, until the field of future conflict was reached. The hole was two feet across, and when Jim slapped the side of the cavity, a loud hissing, coming out of the dark depths, told that there was a 'gator down there. Jim Russell fastened one end of the rope around his waist, and in tones that could not be misunderstood, commanded the men to hold the other end, while he descended and laid hold on the reptile. "And," he added, "when I say 'haul away,' *you haul.*" So saying, he crawled into the hole.

Louder and fiercer became the hissing, and a churning sound betokened the alligator's efforts to hide himself from the enemy. Jim's boots disappeared into the darkness, and soon a faint, smothered "Haul away!" told that Mr. Russell had secured his prize, and desired a whiff of fresh air. The alligator was evidently in close quarters, and the musk of his anger, rising from the hole, mingled with a murmur of cuss-words, told that the struggle was nearing a crisis. The men pulled until they "saw stars," and at last they brought the weary, panting pair to the surface. Jim was muddy, and the rope had pinched him in the waist considerably, but he had his alligator.

CHAPTER IX.

A FEW WORDS ABOUT PHELPS, THE KING OF BEAR-HUNTERS, AND HIS INTERESTING COMPANIONS.

If ever a man deserved the surname of Nimrod, it was that man Phelps. His very soul seemed to leap within him, at the thought or suggestion of a chase after big game; bear was his favorite game. He had roamed with Fremont over the Rocky mountains, and caused countless grizzlies to tumble down the canyons in a death struggle; even the mountain eagle, wheeling around his eyrie among the beetling crags, and looking down "a thousand fathoms' depth of neter air," was not safe from his rifle, for his climbing powers were equal to his marksmanship. But evidently, the transition from the rugged cliffs of the Rocky Mountains to the quiescent lakes and level stretches of Florida hammock and pine woods did not betoken a wane in his ambition as a sportsman. He found the alligator a rather cowardly citizen, and the bear of the Indian river hammocks was tame indeed when compared with the grizzly, but its flesh was better, and in eating it, he grew so robust and jolly that he never looked back on the old scenes with regret.

I met him in 1854, about the time his fame began to spread in the Indian River region. In those days, you could hardly leave your house for ten minutes, without encountering a deer or bear. The old cow-hunters of the surrounding country considered themselves "tip-top" at bear-slaying, but they all acknowledged the superiority of Phelps. They told some great stores of his extraordinary skill in that line; said that he could take aim and kill a bear a hundred yards distant,

simply by sound, the darkest night that ever came, and some were ready to swear that he was in the habit of following trails by scent, as well as any of his dogs. Everybody knew or felt that he was something great, and I, among others, was anxious to make his acquaintance.

We came upon him in a hammock one day, surrounded by his dogs, and eating bear meat. The dogs looked hungrily at us, and beat their tails on the ground, but a word from their master appeased them. (They were fearful beasts.) Phelps came forward and invited us to the feast; an offer which was accepted with gratitude, if not with etiquette. Taking our seats on the mossy trunk of a fallen live oak, and seizing each a bone, draped in fat, tender flesh, we made a most hearty meal, *a la cracaire*. Our host was glad to have met us; his eyes lighted up, and he looked gleeful at the prospect of having an audience for his latest bear tales. For, next to hunting and eating that lordly game, he liked to tell of his exploits. I wish I could recall one of these yarns; I am sure it would astonish and amuse you.

Phelps was clothed in raiment of cotton, dyed with the bark of the red mangrove. (This gives cloth a beautiful purplish brown color, and when treated with a mordant like alum or copperas, will hardly ever fade. Some long-headed Yankee may yet find his fortune in red mangrove bark. If he wants to try it, he can find any amount of the raw material around the sonth coast.) His hunting shirt had been rendered perfectly water-proof by the oil from the fat bear meat which he was in the habit of carrying on his shoulders, and his long, black hair shone with a fine lustre, from the same cause. Sickness, to him, was a myth, and medicine an insult; while he could imbibe liberal draughts of sweet, limpid bear oil, what cared he for wind or weather?

His dogs were not less remarkable than their owner. There were five of them, and the features of the bloodhound seemed to predominate. Phelps had procured them from Captain Douglass Dummitt, of orange grove fame, and trained them himself. Like most dogs of this breed, they were si-

lently ferocious, and seemed ever to yearn for a victim; they were all formidable, but Rowdy, the leader, was simply a terror. I looked on him very much as a rabbit looks on a big cat. Those watchful eyes of his seemed never to close, and his jaws dropped just enough to show an armory of teeth as cruel as Cerberus, and as relentless as death itself. He was white, with black spots. Our hero was well provided with defenders, but not the least of his possessions was his rifle, which he called "Ruin." He purchased Ruin from Captain Miles Burnham, who had it made to order in New York, at a considerable outlay, and it was the most perfect weapon of the kind then in use.

In the evening, after he had finished the most important task of the day—the supper of bear's flesh and palm-buds—he laid himself to rest, as if no company was present. Underneath a palmetto shed, he unfolded and hung up his forty yards of mosquito netting, and extended himself on the soft Mackinaw blankets he had brought from the Rocky Mountains. Then, raising the netting a little, he called each dog—Rowdy first, and then the others, and they came, just as their names were called, and took their places around their master. Then, with the invincible Ruin nestling by his side, he drifted off into a dim, shadowy land, where bears were as plentiful as mosquitoes, and much easier killed. With those sleepless sentinels around him, I cannot imagine what he had to fear. Such a cordon of watchers might make a night's sleep in an East India jungle, one of security and peace. And you may rightly judge that those dogs received good treatment. Every morning they received a liberal allowance of hominy and bear oil, together with what bits of meat they wanted. Phelps assured me that he would sooner go hungry any time, than see his dogs suffer for something to eat. "The man that strikes a dog of mine, strikes me," was a frequent remark with him. What an expression! As if that man could be found, who would dare such a thing! It would have been strictly a personal matter between the man and the dog, to be settled in a very short time, to the decided detriment of the former.

Usually, a bear is not of a very agressive turn of mind, but

I heard something once, which gave me a different opinion. Phelps, Jim Russell and Capt. Davis were rusticating on Lake Worth, and they had found a fine camping spot. Bear signs were abundant, and the outlook for a huge run of sport was very encouraging. The day was spent in making all possible preparations for the hunt next morning. (It was their intention to turn out before day-break in the morning, and surprise the bears while they were napping.) Late in the afternoon, the party went on a reconnoitring tour, so as to be well posted when the chase was begun in the morning. It was some time after dark when they returned to supper. While they were eating, they heard heavy steps approaching, and before they could utter a word, a huge bear strode into the camp. "Not a moment stopped or stayed he," to ask permission of the proprietors, but walked right into their midst, almost brushing against one of the men and rushed at a dog who was sitting near by. That startled animal, finding himself decidedly at a disadvantage, took to his heels, with the bear in hot pursuit. Round the camp they went, and the men stood stock-still, gazing at the strange spectacle in powerless and speechless amazement. Finally, Jim Russell rushed down to the boats, which were on the margin of Lake Worth, about two hundred yards away, where the guns had been left. Before he returned, the big beast had vanished, and nothing could be done, but quietly sit down and finish their supper. Jim Russell—who is still living on Indian river—said he never could account for this strange freak, and thinks it is the only case of that kind ever known.

Our hero's tales of triumph and adventure were numerous and varied, but his favorite theme was his encounter with "Old Slewfoot," a bear of prodigious dimensions, that had tantalized the old hunters in that region for years, appearing at intervals, and giving them a glimpse of a huge back and shoulders, only to fade away into the recesses of Pepper Hammock, where the utmost efforts of his pursuers failed to reveal his hiding-place. This hammock took its name from the wild pepper, which grew there in great abundance. Old Slewfoot once had a fight with a panther, and bore a memento of the conflict on his left fore-foot, which had turned "wopper-

jawed," and made a track easily recognized by all who had heard of him, and gained him the name above mentioned.

To kill Old Slewfoot became the dearest ambition of Phelps' life. Creeping under the palmetto, in the sombre shades of the hammock, morning and evening, enduring the bites of mosquitoes, red-bugs and seed-ticks, with his trusty hounds along with him, he hunted the old veteran for two months. One morning, the bell-like tones of his big dog Rowdy waked him to the sense of something important. Hastily slipping on his moccasins, (it was about daybreak) he slung Ruin across his shoulder, and ran toward his dogs, who were creating a fearful racket in the hammock, two or three hundred yards away. "If they've treed *him*—if they *have* treed him!" was his only thought, as he rushed along.

Yes, Old Slewfoot was in close quarters. The dogs were all around him, and Rowdy was about to reach his throat, when old Ruin delivered a message in lead and flame that made the cool morning air quiver for miles, and the great animal reared and fell at a conqueror's feet, never again to roam through the shady hammock. The voice in which each old hunter congratulated Phelps on this exploit was tinged just a little with envy, for they all imagined that the bear was their lawful prey, and had a kind of idea that no interloper should take such advantages. But when the time of feasting came, each old worthy enjoyed a good quantity of the meat. Thus did Old Slewfoot find, at last, a warm place in the hearts (and stomachs) of those who had been his bitterest enemies. And Phelps understood just how to cook bear meat, if any body did.

Let me tell you of a favorite dish of his, and then I will close. You know, a great many people throw away the feet of a bear. Well, Phelps didn't. After cleaning them thoroughly, he boiled them in plain water for two or three hours; then he would stew them up some way with onions and palm buds, and you couldn't, for the life of you, tell what kind of meat it resembled; but you knew one thing—but few delicacies were equal to it. If I had that dish for dinner every day now, I would undoubtedly be a healthier (and probably a better and wiser) man.

CHAPTER X.

GIVING MY READERS MY IMPRESSION OF THE FLORIDA KEYS —A SOJOURN WITH PROF. CURTISS.

When you take up a map of Florida, one of the objects which strikes your attention, is a long row of little dots, for islands extending in a long, oblique group, around the southern extremity of Florida, graced with innumerable names, each with a "Key" attached to it. These are known as the Florida Keys, and many who have never visited them, are often heard to ask what the keys consist of, and want to know "what they are good for." My object in writing this chapter is to answer these queries.

In the year 1880, Professor A. H. Curtiss was detailed, by the Department of the Interior, to obtain a complete collection of Southern woods, and it was my good fortune to be able to act as guide for him, on this important trip. On the morning of the 6th of May, we started out from Key West, in a sail boat, and headed for Boca Chica. After a sail of two or three hours, we landed on the Key, and prepared a camp. The Professor had invited Mr. Ashmead, of Jacksonville, to accompany him, and as we had made every conceivable preparation for the journey, before leaving Key West, there was nothing to put a damper on our spirits. The afternoon was spent in exploring the island and gathering plants. The soil was very rich, covered with sea-grape, wild sappadillo and dog-wood trees, and vines. There did not seem a very promising field for collecting specimens, so we made our

visit as short as possible. The Professor was desirous of reaching a locality where specimens were more abundant, and the scenes which lay ahead were looked forward to with pleasant anticipations. Our time, which had not been limited or fixed by any arbiter, must nevertheless be put to the very best possible use, and we hastened onward, actuated by a desire to seek out the habitat of all the forest trees, common and uncommon, that were to be looked for in this sunny latitude.

Next morning we "weighed anchor" and proceeded on our journey. The morning was calm and bright, and the breezes still slumbered on the waters, which lay unruffled before us, shaded by the reflections of the trees on hundreds of little islands or keys, behind, before and around us. Of course we made rather slow progress, and until a slight breeze sprang up, I was afraid we would do nothing at all that day. We drifted idly among the keys, and did not pass them rapidly enough to prevent an examination of some of their peculiarities. Occasionally a column of smoke, arising from a solid phalanx of banana and lime trees, showed that the key was inhabited. On the shore, a deer occasionally jumped into sight and then disappeared in the bushes, about the time a discussion was begun as to the propriety of stopping and having some sport as well as venison. The usual size of these smaller keys, was about a mile, and sometimes we encountered some containing no more than forty acres, while others were many hundred acres in extent. The width of these curious bodies of land was never equal to the length; in many cases, a key two miles long was scarcely a half mile wide, and covered almost entirely with lime-rocks. Around the borders was a dense growth of mangrove and button-wood, which often hid the interior of the island from view.

Buttonwood makes better fuel than any wood I ever saw. A log of buttonwood, set on fire at one end, will burn to ashes before the fire goes out, and generates an intense heat The wood is collected on the keys and shipped to Key West, where it brings from five to seven dollars a cord; it is about the only fuel used there.

That evening we landed at Little Pine Key, something near fifteen miles from Boca Chica. We stopped here, simply as a matter of necessity, for the island was little else but a long, irregular pile of lime-rocks, covered sparsely with pine trees of small stature. To the west, about three miles away, we could see Big Pine Key, with its tall pines and mangrove thickets. These are the only keys on which pines are found.

On that morning we were favored with a fine breeze, and it did not take us long to reach Knight's Key, and all day, we wound in and out, among the archipelago of keys which stretched in every direction, as far as we could see.

At 10 o'clock next morning, we came to Matacomba Key, and were given a cordial welcome by Messrs. Pinder and Sanders, and it may be easily imagined that we were glad to find ourselves among human being once more. Matacomba was two miles long, and not much more than one-fourth of a mile wide, bordered with a beautiful white sandy beach. As usual, the soil was rocky, and it was a source of continual surprise to me, that such luxuriant forests could grow on land like this. Not only forest trees, but many varieties of semi-tropical fruits and flowers, made themselves perfectly at home in this halcyon spot; well might they lift their heads fearlessly into the warm, brine-laden air, for no modicum of frost ever reached their home, and the tenderest exotic might never find its ambitions checked by an unkindly blast.

Our newly-found friends spared no effort to make our visit a pleasant one, and it was with much interest and pleasure that we inspected their gardens of tropical fruits. Here, indeed, was the very home of the pine-apple. At that time, they had made but a modest beginning, but since then, I have heard that they have made some immense shipments in the last year or two. The manner of cultivation was peculiar. No hoe could be used, on account of the extreme shallowness of the soil. The truth of the matter is, that the ground could not be stirred, for fear of its being blown away, and leaving nothing but the bare rock. But you could not throw a plant down without its taking root, so favorable were the conditions

for growth. The plants were set out about eighteen inches apart, and then left mainly to themselves. One weeding was considered sufficient, and the soil was not stirred at all. The severe droughts that prevail on the Florida Keys, at times, do not affect the pineapples very seriously. Indeed, I have been led to believe that they are more than half air-plants; lately, the botanists have established a very palpable relationship between the air-plant, long-moss, and pineapple, and that is one point in favor of my theory. At any rate, I have always noticed that they grow much better on dry soil than in a damp situation.

I doubt if the Professor or Mr. Ashmead had ever before enjoyed such an abundant and protracted feast of pineapples, and I, (Floridian that I am,) can truthfully say that I had never eaten so much of the luscious fruit. Sappadillo, papaw, and sugar apple trees were loaded with young fruit, and it was quite tantalizing, to reflect that we were there too early in the season to enjoy any of the ripe fruit. We consoled ourselves, however, with looking for specimens. Before I leave the subject of fruit-growing on this key, I wish to say a little about the cultivation of bananas, etc.

On different portions of the island were little patches of deep soil, called by the inhabitants, "red-holes." These curious spots are from fifteen to thirty feet in diameter, and take their name from the peculiar reddish color of the soil contained in them. Scarcely any rocks are found in these spots, and the fruit-growers select them on that account, as a place to plant bananas and tropical fruit-trees. Dwarf bananas are the only kind grown to any extent on this key, and, although the plants are of low stature, the heads are very large, and sometimes are so long that they touch the ground. These red-holes are not found on every key, and are valued highly by the planters.

For nine days we remained on Matacomba, and the ax was kept busy, and our negro, Dave, displayed great energy in felling the trees, under the professor's directions. Here we found fine specimens of prince-wood, crab-wood, lignum

vitæ, torch-wood, and Madeira-wood. Torch-wood is almost as fine-scented as sandal-wood, and is very inflammable. Crab-wood, which finds its way to Northern markets in the shape of walking-canes, was found here in abundance. The wood is valuable, and is worth at least fifty dollars a cord, notwithstanding the fact that it was being used for fuel on this key. It would weary the reader to give the name and description of each tree we saw at this place, and I will content myself with the remark that on no other key, did we find a greater variety of woods.

The nine days of our sojourn at Matacomba were calculated to remain as bright spots on the memory of the three principal actors in the affair, and we were really sorry to turn our backs on this lovely, sequestered spot. It seemed to us, that we had seen the garden-spot, and that the coming scenes would prepare us for disappointment. A certain subtle, inexplicable air of comfort and content about the place, had not failed of its effect upon us, and in reviewing the favorable features of the surroundings, I almost forgot the charms of Indian river. But the voice of duty reminded us that we must seek new fields, and extend our investigation among the semi-tropical forests.

Plantation Key next received our attention. But a brief glance in the interior showed us that the prospects for a new collection were not flattering. The main objects of interests were Mr. Low's pineapple field and cocoanut grove. Here we saw thirty acres planted in pineapples, covering the ground completely, and gay with ripening fruit. Ah, wasn't that a spicy breeze, that saluted us, when we landed? Sated, as we were with the fruit we had eaten at Matacomba, we still could not help enjoying the rich fragrance of the breeze that swept that precious expanse of green, purple and gold. The crop that year was coming on finely, and Mr. Low was counting on cutting at least eight thousand dozen pineapples.

Pleasant as the prospect was, we could not stop, and soon, the green island with its long colonnades of palms was left behind, and our sail filled with a noble breeze, which bor-

us in the direction of Key Largo. At the key, we formed the acquaintance of Mr. Baker, one of the first men who ever thought of raising pineapples on the keys. This is more than twice as large as any other key, being twenty-five miles long, and averaging nearly half a mile in width. "Largo," in Spanish, signifies "long," and the name fits this key very well.

Key Largo was well timbered, but as there was no prospect of finding any new specimens, our stay was short. Two days afterward, we reached the Indian hunting-grounds, on Biscayne Bay. This was my second visit to this wonderful region, and we all entered it with pleasant anticipations. I was not going into an entirely strange land, for I was sure of meeting Mr. John Addison, an old-time friend of mine whom I had known for thirty years. The first thing we did was to penetrate the dense green wall of hammock which rose up before us. Here, indeed, was a lavish wealth of pure, undefiled nature; huge trees of gumbolimbo, red-stopper and mastic towered away above us, and the graceful trunks of innumerable palms met our eyes on either side. A strange, but not unpleasant odor was exhaled from the ground, where centuried logs and leaves from spicy tropical trees were mouldering into dust. We found a tree, which, I believe, could not have been found anywhere else in Florida. This was the so-called paradise tree—a lovely specimen of the vegetable kingdom. It was forty feet high, covered with a wide spreading crown of leaves, of a delicate, sea-green tint, which gave the tree an extremely handsome appearance. When we found this tree, the berries were just ripening, and we were deprived of the opportunity of seeing the flowers. Judging from the descriptions of those who were well acquainted with the paradise-tree, the flowers must be marvelously beautiful.

We found John Addison snugly hidden away in this hammock, with his dwelling almost hidden from sight by a grove of fine banana plants. Frost was unknown, at this place. On Addison's farm, we saw the finest of sugar-cane and Jamaica arrowroot growing. No orange trees were to be seen, but limes and lemons were doing well. (It is a curious, but

undisputed fact, that orange trees can not be grown on the Florida Keys, nor on such land as the Indian Hunting Ground. Unsuccessful attempts have been made, to raise them in these places, but the rock which underlies the soil prevents the tap-root from penetrating deep enough. And you very seldom see a cow about the Hunting Grounds. The old settlers say that there is some poisonous grass growing in the woods, which kills the cattle. A cow is very seldom seen on the Florida Keys. But there are so many good points about this part of the country, that you would be well satisfied to forego cattle and oranges.)

I don't remember how many new varieties of woods we found here; there was the red and black-stopper, the blolly-tree, and the cocoa-plum, the "pull-and-haul-back,"—a thorny tree or vine, whatever you may call it, for it partakes of the nature of both—and the rubber trees. Dave served us faithfully and he and his ax were potent agents in getting together one of the most complete collections of forest trees ever made in this or any other country. Dave made the chips fly with a zeal that reflected great credit on his race, but there was one time when he refused to obey commands. And that time, he had a pretty good reason for it. It was when we were on Boca Chica, and it was a manchineel tree, that excited Dave's fears. After listening to a description of the terrible properties of this tree, Dave swore that we might ask any other duty of him, but that he would not touch that manchineel for anything. He described, with a shiver, the dire consequences attendant upon cutting the tree; one stroke of the ax, he said, would be sufficient; the milk, which is found in this tree, in great abundance, would be scattered over him, and everywere a drop fell, there would be a frightful sore. The manchineel is terribly poison, but not so bad as Dave believed.

We divided our time between the Hunting Grounds and Miami, and stayed in that region about ten days. Before we left, we secured the greater part of the collection. While at the Hunting Grounds (which didn't very well deserve its name, for game was by no means over-abundant,) we were aston-

ished at the springs, which burst up in the salt water, near the beach. Truly, they were wonderful. Wading out twenty-five or thirty yards from the shore, we could see the fresh-water springs rippling up through the brine, and we tried some of the water, to see how it tasted. Knocking out both heads of a barrel, we placed it around a spring, and carefully bailed the salt water out. Soon the barrel was half full of cool, sweet drinking water. There were a great many of these springs, and some of them were of quite a good size. I do not remember having seen anything like it, before or since, and am inclined to believe that it is a first-class curiosity.

We made arrangements with a man to carry the specimens to Key West, and then journeyed to the Gulf coast, where the collection was completed. We had gathered together forty-four distinct varieties of South Florida woods. We were three months on the trip, and came back with the consciousness of having seen a great deal of Florida, and it was just the impression made on me by this trip, that led me to write an account of it. My *compagnons du voyage* have each given their impressions to the world, and I have tried to do the same. Five years have elapsed since the journey was made, and the visitor, now, would have to remember that, about the time he thought of taking me to task for some apparent discrepancy between my description and the country as it appears to him.

CHAPTER XI.

A SHORT DESCRIPTION OF SOME OF THE TROPICAL FRUITS WHICH FIND A HOME IN FLORIDA.

"The tropical fruits of Florida!" What a nameless charm invests this subject, for the denizen of a colder region, in whose imagination these children of the southland exist only as a dream! But the thrill of enthusiasm awakened by the contemplation of these unseen glories must, in a considerable measure, fade in presence of reality. That is, you must prepare yourself for disappointment, if you expect the fruits and flowers of paradise on an earthly soil. The fruits I am about to describe, are objects of interest mainly on account of their rarity in this country, and partly as an undeveloped source of revenue to the State.

Accounts of tropical fruits are as often exaggerated as fish or alligator stories. I read a dime novel once (reader, it was a good while ago; that's my only excuse)—I think Wild-cat Ned, the Bloodhungry Prince of the Prairies, was the hero—where the brave lad rescued a maiden, single-handed, from a band of savages. The scene was laid in a wilderness, where all manner of fruit was opportunely abundant. There was nothing remarkable in all this—I had read of countless exploits of a similar nature, before—but I was astonished to hear that the young hero, in looking around for something for his girl to eat, found some delicious ripe bananas, *growing on a vine!* That disgusted me with that sort of literature. There are some big stories told of other fruits. An American

traveler, in speaking of an East India fruit called the durion or durian, says that it is at once the most delightful and most disgusting of all fruits. He says the odor of a ripe durian is a hundred times worse than a whiff from a glue-factory or bone-yard, and yet so intensely luscious and rich that the appetite for it amounts almost to a frenzy. He gives it as a well established fact that the native women often sell their children, in order to procure the fruit. There is undoubtedly such a fruit as the durian, but I hardly think its properties are so "agonizing" as one would gather from the above description. In our own Florida, the guava plays a milder role, but is sometimes roughly handled by those who are so unappreciative of the good things of Nature, as not to like them. The following incident is said to have occurred at Orlando, in Orange county:

A down-east Yankee mounted a "kyart" belonging to a venerable Cracker who had brought some of his plantation products to town. Sniffing the air vigorously, the Yank looked around in the cart, and saw a box, covered with moss. "What have you in heer?" enquired the descendant of John Alden, bending his eyebrows in the direction of the Cracker, who answered, smilingly: "Gwavers." "Great horn-spoons!" gasped the Yank; "now, p'raps you'll tell me how long they've been dead!" It is said that that Cracker has not yet quit laughing over the Yankee's ignorance.

Very few people like guavas at the first trial. The odor is powerful and penetrating, and is calculated to antagonize the senses, until a closer acquaintance is gained. The best variety I know of is the large, white pear-shaped kind, and I challenge any one to show me any kind of Northern fruit that will eclipse this prince of luxuries. The pink, catley, strawberry, and vinegar guavas grow finely throughout South Florida. The finest specimens of this fruit I ever saw were grown at Point Pinellas, on Tampa Bay, in the grove of Vincent Leonardy. Guavas will grow, with a little protection, as far north as Palatka and Jacksonville, although it is seldom met with north of Putnam county. The fruit ripens from July to November.

The Agua Cate, or alligator pear, is not a pear at all; it has one large seed in the centre, weighing two ounces, in a good specimen. I have seen agua cates (pronounced *ah-guah cahta*) weighing two pounds each. The flavor transcends that of the finest muskmelon, and the fruit is eaten with salt and pepper. It contains no acid, but its rich, marrowy, vegetable-like pulp renders it a fine article of food. One full grown specimen is as much as any man can eat, and it more nearly takes the place of meat than any other fruit I know of. One fine feature of this tree is its power of resisting cold. Confident that it would succeed as far north as Palatka, (notwithstanding the evil predictions of a few croakers who styled themselves judges of such matters) I introduced some of the trees in 1882. Mr. Dorwin, Mr. Jackson and others procured young plants of me, and the present fine condition of the trees attests the favorable action of Palatka soil and climate. They can undoubtedly be grown, successfully, in Putnam county, although hardly in such perfection as farther South. The best specimens of this valuable tree I have seen, are growing on the property of John Roble, near Tampa. In August, 1880, I accompanied Professor A. H. Curtiss to this place. The trees, at that time, were thirty-five feet high, and about 15 inches in diameter. Professor Curtiss pronounced it one of the most beautiful that he had ever seen. Such a tree would no doubt bear annual crops of fifteen hundred pounds of fruit, that would sell readily at eight cents a pound. In Tampa, I never saw them sell for a lower price than seventy-five cents a dozen. The agua cate begins to bear at the age of five years. A temperature of 20 degrees above zero is cold enough. but I think they will stand it for a short time. The fruit ripens from August till October.

The mango is a fruit that has many friends, on account of its handsome appearance, and its novel flavor. It is pear-shaped, flattened and covered with russet-brown and greenish-red splotches. The seed is very large and flat, the flesh adhering to it very firmly. Just the least odor of turpentine, in some of the specimens, detracts a little from the popularity of the fruit. The tree is exceedingly prolific, and the fruit bears shipping well. Mangoes will stand a pretty sharp frost,

but I wouldn't advise any one to risk too much of it. They begin bearing when three years old, and are of rapid growth. The long, drooping branches, laden with fruit, and the shining red, willowy terminal leaves are quite handsome. The fruit commences ripening in July, and the crop is of short duration.

The sappadillo is one of my favorites. There are eight varieties of the fruit, and they are all good; but the egg-shaped variety is the best. The Cubans say: "*Es fruta muy delicada;*" "The fruit is most delicious." On the Keys they attain their greatest perfection. The Cubans acknowledge the superiority of the Florida sappadillo over their own. The tree is small, hardly ever exceeding four inches in diameter, and the leaves are very dark green. The pulp is very sweet, and brownish in color. Outside, the fruit resembles an Irish potato. Like the mango, the sappadillo bears the third year after planting, and is very prolific. They always command good prices in the markets of Key West and Tampa. I am pretty sure they can endure a moderate frost without protection. The crop, which begins with July, lasts well.

Probably, the largest fruit in Florida is the sour-sop, or Anona muricata, called by the Spaniards *guanavana*. They are simply immense. Four pounds is the common weight. The seeds are numerous, small and black, floating in a snowy, custard-like pulp, which has a fine flavor, unlike that of any other fruit. Ice-cream and cooling drinks are made of them in Key West. The exterior of the fruit is of a greenish color, irregular in shape, and covered with soft prickles. The tree, which begins to bear at five years of age, is a strong grower, and the leaves are small and lanceolate. The fruit is rare in Key West, and commands as high as sixty cents apiece sometimes. In the latter part of August the fruit begins to ripen, and is jealously guarded, to prevent its getting injured or stolen. A man named Sanders, in Key West, was the owner of the largest tree in the city. To prevent the fruit from falling and bruising itself during the night, he prepared bags of cloth, placed them around the fruit, and tied them to the

limbs. If the fruit took a notion to part from the parent stem during the night, the bag would hold it. Sour sops can not withstand frost; I am pretty sure of that. I think it is the most delicate fruit grown in Florida, and one of the most valuable.

The Jamaica apple, or cherimoyer, is not at all like a Northern apple; the seeds are half an inch long, and flat; the pulp is firm and white, with a rich, sub-acid flavor. This fruit is not plentiful in Florida; the tree is small, and by no means a prolific bearer. On the Keys is its home, where it ripens in August, and it bears in five years from the seed.

The sugar-apple tree resembles the above, but the fruit is very different. It is exceedingly rich; the pulp is like candied honey, with a peculiar grainy texture. Like the papaw of the Middle States, and other members of the Anona family, the seeds are smooth, round and black, and the outside skin is olive-green, with a knotty surface; the aroma is fine in the extreme. It can endure a moderate degree of cold, but does not bear transportation. It commences to bear in three years, and ripens its fruit in August.

The mammee tree is very rare in Florida; the only specimens I know of, in the State, are growing on Mrs. Gilbert's place at Miami. Professor Curtiss, (considered the most prominent botanist in the South) passed Miami with me, in the year 1880, and we saw these trees. They were, at that time, at least thirty feet high, with a spreading summit. The leaves were a most vivid green, and interspersed with snow-white flowers, fully two inches across. Magnificent is a tame word to use in connection with these trees. Two of them stood near together, one loaded with fruit and the other with blooms. The tree is dicœcious; that is, it requires two trees to produce fruit. I think these are the only specimens of the mammee in the State. The fruit is as large as a canteloupe melon, with a dark, brownish skin. Inside it is yellow, with a soft, yielding pulp, when fully ripe. If I were asked to describe the flavor of this fruit, I would have to answer: "It tastes like a mammee, more than anything else." It ripens in June, and continues about two months.

The West India papaw (*Carica papaya*) is not a very delicious fruit; it is as large as a man's head, and is ranged around the trunk of the tree, where the crown of leaves put forth. In two or three years, you may expect fruit, if the tree has been planted in soil sufficiently rich and moist. Papaws are most plentiful on the coast, where the frost protection is fairly good. They will not stand a heavy frost.

I have seen a fruit in Key West, the name of which I will write Tee-Ess. It is very rare, and the few trees in Key West are valued highly. It looks somewhat like a large, yellow plum, but the flavor is something entirely new. The Tee-Ess is undoubtedly the costliest fruit, to its size, in the State, and is very sensitive to cold. The fruit, which ripens in late August, is produced when the tree is five years old.

Tamarind trees are plentiful on the Keys. A most delicious summer drink is made from the pods, which are filled with an acid pulp, of a jelly-like consistency. Handsome indeed are the long, drooping boughs and bright green bi-pinnate leaves, and the tree resembles, in some respects, the honey-locust, without the thorns. It bears early, and is not injured by a moderate frost.

The date-palms of St. Augustine bear heavy crops each year. Some of them are over thirty feet high, and must be fully a hundred years old. The date is dicœcious, and the fruit, which is hard, and of a reddish color, is not of much value, as no one seems to understand the art of curing it. This secret must be learned, before dates become a source of revenue to the State.

The India rubber, saffron-plum, mastic fruit, cocoa-plum, (*Chrysobalanus icaco*) and custard-apple have been mentioned in my Indian War Reminiscences. Bananas, pineapples, and the Citrus fruits have not been touched upon, as they are too well known to need any description. Of course, I could not enter into detail in regard to the cultivation of the r uits described in this chapter; anything like a satisfactory synopsis of that kind would make a book of itself. Much information and pleasure could be gained from a thorough tour through Florida. Our flatwoods and scrubs are teeming with tropical plant-life, and our hammocks abound in fruits and flowers, some of which have never found their way into any botany.

CHAPTER XII.

IN WHICH THE INEVITABLE FINALE AND DISCLAIMER APPEARS. —SOUTH FLORIDA IS VINDICATED, AND THE PEN IS LAID ASIDE.

Since that auspicious and eventful morning of Palm Sunday, A. D. 1512, when Ponce de Leon lifted the veil of obscurity from a land *sui generis* and unrivalled in the gifts which partial Nature had bestowed upon it, Florida has smiled through a mist of romance which has not been dispelled by the advance of three and three-quarter centuries. The wild, ambitious dreams of the Spaniards who sought the precious metals in our hammocks find their counterpart in the eager anticipations of those who come here to plant orange groves, fondly believing that a speedy fortune awaits them, in the "field of the fruit of gold." The difference is, that the latter dream is capable of realization.

The title of these sketches does not seek to draw an invidious distinction between North and South Florida. It so happened that the greater portion of my life as a guide, soldier and pilot has been passed in the extreme southern portion of the State, and as it did not behoove me to enter into details, in any portion of the book, in regard to the advantages or disadvantages of any particular section of Florida, I can disclaim any intention of writing an immigration pamphlet, or an advertisement of real estate. The old settlers of Florida here read an account of scenes with which they are familiar; the stranger is introduced to a region of which he has heard a great deal, and every reader may know that the de-

scriptions are capable of corroboration, for they are all true. The book will not tell the reader how many orange trees can be planted on an acre, nor how many thousand boxes of oranges those trees will yield in five years, and does not even give a hint as to the best place in the State for growing them. Not a line will be found. in reference to any real estate, for I have not a foot of land for sale. And I don't. think I have made the impression that I was trying to persuade anybody to come here. I reason this way: If you have made up your mind to come here, why, you are *coming*, and nobody need try to dissuade you. On the other hand, of course, if you didn't want to come, you wouldn't thank anybody for insisting on your doing so. But I hope I haven't scared you away, by any of my descriptions. The stingarees of Indian river, and the 'gators of Okeechobee are still "alive and kicking," but I never hear of their hurting anybody, nowadays. Mosquitoes and mosquito stories are plentiful as ever; the lordly Seminole still scours the hammocks of Walk-in-the-Water, in search of deer and bear, and loves "wyomi" and red handkerchiefs as passionately as ever.

The enthusiast who wants to come here, should remember that he can't find everything just to his notion; he must not lose his religion if he is bitten by a few mosquitoes and sand-flies while walking beneath blossoming orange trees with the girl of his choice, and if he wants to recline at length on the grass in the shade, he must not be surprised if the sand-spurs pin his clothes to his skin. The botanist who penetrates into the rich, semi-tropical hammocks in search of flowers, should not grumble if he returns laden with red-bugs and other interesting little creatures who lie in wait in the shady woods, and whose name is more than legion.

In coming to Florida, one should leave kid gloves, and great expectations behind. And, while many people and many papers are saying that this is the poor man's terrestrial paradise, I would advise the comer to bring a little money along with him, "just for convenience's sake, you know," such little items come in pretty handy sometimes. As a general rule, a double-barreled shot gun will kill all the game you